SONY

UHF SYNTHESIZED PORTABLE TUNER

WRR-805A

SERVICE MANUAL

CE/AU Model

1st Edition

⚠警告

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お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

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3-866-674-21 (1)

UHF Synthesized Portable Tuner

Operating Instructions GB
Bedienungsanleitung DE
Manual de instrucciones ES
Wireless Channel Lists/ Übertragungskanallisten/
Listas de canales inalámbricos

WRR-805A

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CE62 CE69

English

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Overview

The WRR-805A is a highly reliable portable tuner for the 800 MHz band Sony UHF wireless microphone system to be used for broadcast or movie production purposes.
This tuner is suitable for Electronic News Gathering (ENG) and Electronic Field Production (EFP).

Wireless Channels Selectable

The microphone/transmitter and tuners of the wireless microphone system are classified by frequency band.

A 14-MHz frequency band (or two consecutive-numbered TV channels, such as 62 and 63 of the WRR-805A/CE62 model) or an 8-MHz frequency band (or TV channel 69 and UK General Use) is assigned to each microphone/transmitter and tuner model.

In building a UHF wireless microphone system, be sure to combine a microphone/transmitter and a tuner having the same TV channel number.

CE62 model
A 14-MHz frequency band is assigned to the WRR-805A/CE62 model, permitting it to operate on any of 111 carrier frequencies in 125-kHz steps of Sony original channel plan or 561 carrier frequencies in 25-kHz steps of German User Groups in the range of TV channels 62 and 63.

For the selectable channels, see "Wireless Channel Lists" on page L-1 to L-14.

CE69 model
An 8-MHz frequency band is assigned to the WRR-805A/CE69 model, permitting it to operate on any of 64 carrier frequencies in 125-kHz steps of Sony original channel plan or 14 carrier frequencies in 25-kHz steps of UK General Use.

For the selectable channels, see "Wireless Channel Lists" on page L-1 to L-3 and L-15 to L-16.

Features

Phase Locked Loop (PLL) synthesized system
The WRR-805A has a refined phase locked loop (PLL) synthesizer circuit.

Preprogrammed wireless channel plans for simultaneous multi channel operation
The WRR-805A has many preprogrammed channel groups, meaning combination of wireless channels to permit simultaneous operation of multiple channels without intermodulation.
Any available group and channel can be selected with a simple button operation.

Saved channel setting
The unit stores the channel setting when it is turned off. The saved settings are retained even if the batteries are removed. Therefore, when using the unit next time, you need not make the same settings again.

Wide dynamic range
The compander (compressor expander) system enables stable reception over a wide dynamic range.

Output monitoring
The audio output can be monitored through headphones (either of stereo or monaural). The monitoring level is adjustable.

Muting switch for noise elimination

Compact and lightweight
Mounting technology and the versatile soft case enable this compact and lightweight tuner, which lets you move anywhere for Electronic News Gathering (ENG) and Electronic Field Production (EFP).

Remote battery alarm from transmitter
This tuner has capability of receiving "Battery status information" from the transmitter WRT-805A/822A to make advance warning of battery depletion.
The information is sent in approx. one hour advance to battery exhaust so that you can safely replace the batteries of the transmitter.

Operation powered by easily available batteries
The built-in high efficiency DC-DC converter allows stable operation, for about 6 hours continuously, with two LR6 (size AA) alkaline batteries.

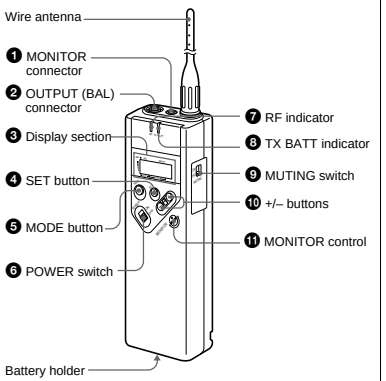
LCD for coordinated operation control
The built-in CPU controls operation of the unit, including the PLL circuit function. The LCD shows the current channel number/frequency, the residual battery power, AF output level and RF input level.
An accumulated operation time indication is also provided for simple control of the time of battery use (in one-minute increments).

Precautions

- The unit is designed for use in ambient temperature range of 0°C to 50°C (32°F to 122°F).
- Do not place the unit on or near heat sources, such as lighting equipment, power amplifiers, or in a place subject to direct sunlight or excessive moisture. In such places, the external finish or internal parts of the unit may be damaged.
- If the unit is used in a very humid or dusty place or in a place subject to an active gas, clean its surface as well as the connectors with a dry, soft cloth soon after use. Lengthy use of the unit in such places or not cleaning it after its use in such places may shorten its life.
- When cleaning the unit, never use organic solvents such as thinners or benzine, which will damage the finish of the unit.
- The unit has been factory adjusted precisely. Do not tamper with its internal parts or attempt to repair it.

This section is extracted from operation manual.

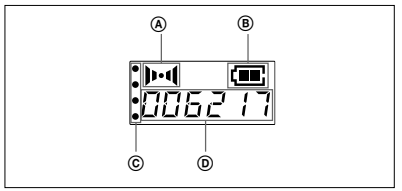
Parts Identification



1 MONITOR connector
To monitor the audio output signal, connect the headphones equipped with 3.5 mm dia. stereo mini jack. You can use either of stereo or monaural headphones. The monitoring level can be adjusted with the MONITOR control.

2 OUTPUT (BAL) connector
Supplies audio signals. You can connect this connector to the microphone input connector of a Camcorder, mixer, or tape recorder by using the supplied cable.

3 Display section
Shows the status of the tuner and the groups and channels assigned to the unit.



Ⓐ AF (audio frequency) indication
Lights when the output audio signal is over the reference level.

Parts Identification

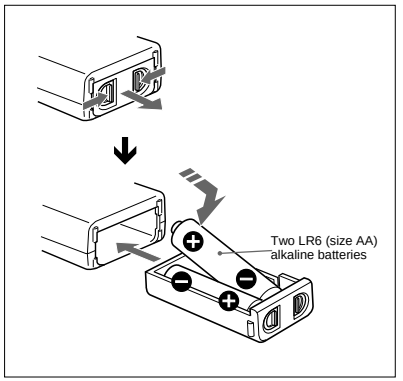
9 MUTING switch
Set to ON to eliminate the noise and signal interference when the tuner is in signal reception standby mode.
See "Muting Functions" on page 12.

10 + (+ selection) / – (– selection/reset) buttons
In setting mode, select the receiving group, channel and frequency using either of these buttons, or reset the time-of-use indication to "00:00" with the – button.
See "Settings" on page 8.

11 MONITOR control
Turn to adjust the monitoring level through headphones.

Power Supply

The tuner can operate on two LR6 (size AA) alkaline batteries continuously for about 6 hours at 25°C (77°F).



Installing the batteries

1 Slide the battery-holder catches inward (in the direction of the arrows ◆ ◆) to take out the battery holder.

2 Match the polarities and insert the batteries.

3 Set the battery holder in the original position.

Battery indication

When you turn the power on, the battery status of this unit appears in the BATT indication on the display section.

	1	2	3	4
BATT indication	Lights	Lights	Flashes	Goes off
Battery condition	Good	Less than half-charge	Almost exhausted	Completely exhausted

Note

The indication may be incorrect if the batteries are not new when installed. If you plan to use the tuner for a long period, it is best to replace the batteries with new ones.

Notes on batteries

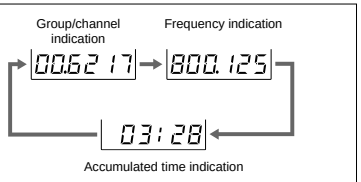
- Use new alkaline batteries.
- Do not pair different types of batteries.
- Always replace the two batteries together.
- The batteries are not rechargeable.
- Be careful to install the batteries with the correct polarity.
- When not using the tuner for a long period, remove the batteries to avoid leakage. If the batteries do leak, clean all leakage from the battery holder case and the unit. Leakage left in the holder case and the unit may cause poor battery contact. If there seems to be poor battery contact, consult your Sony dealer.

Ⓑ BATT (battery) indication
Displays the status of the batteries of this unit.
See "Battery indication" on page 7.

Ⓒ RF (radio frequency) indications
The dot indications show the RF input level. Depending on the RF input level, the number of dots changes as below.

Four dots on:	more than 45 dBμ
Three dots on:	between 35 dBμ and 45 dBμ
Two dots on:	between 25 dBμ and 35 dBμ
One dot on:	between 15 dBμ and 25 dBμ
No dot:	less than 15 dBμ

Ⓓ GP/CH (group/channel) indication
Shows the reception channel group and respective channel number.
Each time you press the MODE button the group/channel indication changes to the frequency and accumulated time indications as shown below.



In Accumulated time indication, it displays the accumulated time of battery use (in one-minute increments).
See "Settings" on page 8.

4 SET button
Press to change and set the contents of the item on the display.
See "Settings" on page 8.

5 MODE button
Press to select the item to be set on the display.
See "Settings" on page 8.

6 POWER switch
Turns the power of the tuner ON or OFF.

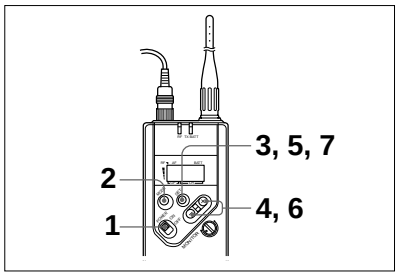
7 RF (radio frequency) indicator
Indicates the strength of the RF input signal.

On in green:	more than 25 dBμ
On in red:	between 15 dBμ and 25 dBμ
Off:	less than 15 dBm (less than muting level)

8 TX BATT (transmitter battery) indicator
Indicates the battery condition of the wireless microphone transmitter. The indicator starts flashing about one hour before the transmitter batteries go flat.

Settings

Wireless Channel Selection



Note

Noise may occur when the power is turned on or off. Be sure to turn down the input level of the connected equipment before operating the POWER switch.

1 Set the POWER switch to ON.
The display shows the same status as before the tuner was last turned off.
If the group name and channel number is shown on the display, skip step **2** and proceed with step **3**.

2 Press the MODE button until the group name and channel number appear on the display.

3 Press the SET button.
The tuner enters in group selection mode and the group name flashes on the GP section.

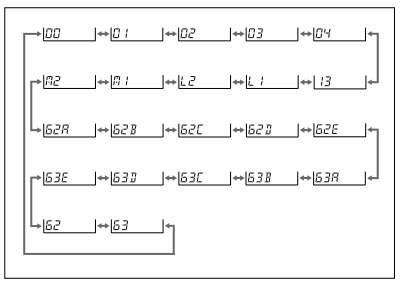
In group selection mode

Display example for CE62 model

4 Press the + or – button to select the group.
Pressing the + button cyclically changes the group indication in the order of tables on page L-2 or L-3.
Pressing the – button changes it in the reversed order.

If you hold either button pressed, the group setting will change continuously.
For the CE62 model, the indication will cycle from group 00 through CE-63 as shown on next page.

When no button is pressed for more than 30 seconds, the group selection mode or the subsequent wireless channel selection mode is automatically released.



For the CE69 model, the indication will cycle from group 00 to H.

5 Once the desired group indication appears, press the SET button.
The group selected is set.
The tuner now enters the wireless channel selection mode, and both of the TV channel number and two digits number flash on the display as shown on the right column.

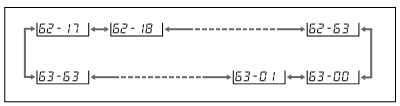
In channel selection mode

Display example for CE62 model

6 Press the + or – button to select the channel.
Pressing the + button cyclically changes the channel indication in the order shown in the table of the selected group in "Wireless Channel List" on page L-4 to L-16.
Pressing the – button changes it in the reversed order.

If you keep either button pressed, the channel number will be incremented or decremented continuously.

Example: when the group 00 is selected for CE62 model



7 Once the desired wireless channel is displayed, press the SET button.
The display stops flashing and the selected group and wireless channel are now stored in memory.

To select the channel by frequency indication

1 Turn on the unit and press the MODE button until the frequency indication appears on the display.

2 Press the SET button.
The frequency indication starts flashing.

In frequency selection mode

Display example for CE62 model

3 Press the + or – button to select the channel frequency.

4 Once the desired frequency is displayed, press the SET button.
The display stops flashing and the selected channel frequency is now stored in memory.

Notes

- Do not remove the batteries during group and wireless channel selection. If they are inadvertently removed, re-insert them immediately and repeat the above steps from the beginning.
- Make sure that the channel selected is the same as that selected on the transmitter used in the same system.
- Depending on the noise or interference conditions, the selectable channels may not necessarily all be usable. If necessary, you can determine the usable channels by stepping the channel selection through a number of channels on the tuner with the microphone/transmitter set to OFF. Those channels on which the RF indicator of the tuner does not light are usable.
- If there is a TV broadcasting station near by, do not use the station's channel.
- The unit may not operate correctly if it is turned on again immediately after turning off the power while in setting mode. Pause for a few seconds or more before turning on the power again.
- When operating two or more UHF wireless microphone systems using channels in different groups, ensure that the systems are at least 100m (330 feet) apart from each other. (The same applies also when using channels in a group if the different UHF wireless microphone systems are installed where they are within sight of each other.)

Resetting the Accumulated Time Indication

The time indication accumulates time in hours and minutes when the WRR-805A is on.
Reset the indication to "00:00" whenever you replace the batteries so that it can display the running time of the batteries.

1 Press the MODE button until the accumulated time appears on the display.

2 Press the SET button.

Accumulated time

3 Press the – button.
The time indication resets to "00:00."
While you see "00:00" is flashing, you can go back to previous value by pressing the + button.

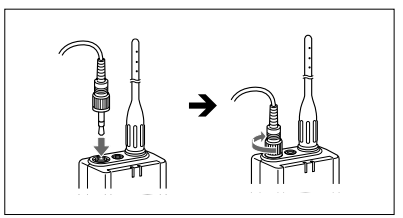
4 Press the SET button.

Connections

Caution

When connecting the unit to a camcorder, be sure to turn the unit off.

Connect the OUTPUT (BAL) connector to the microphone input connector on DSR-200, DCR VX-1000 or other camcorders by using the supplied cable.
To secure the output cable connection, be sure to turn and lock the connector cover as illustrated below.



For attaching the unit to a camcorder, see "Use of the Soft Case"on page 14.

To monitor audio output, connect the headphones to the MONITOR connector. The monitoring level can be adjusted by turning the MONITOR control.

Microphone System Operation

1 Set the MUTING switch ON before turning on the tuner.

2 Turn the POWER switch on.

3 Set the reception channel.
For details on setting the channels, see page 8.

4 Set the MUTING switch OFF, and turn on the transmitter or the wireless microphone.

If noise is heard

Depending on the environment where the system is installed, outside noise or radio wave may disrupt the transmission of certain channels.
To select a channel under this circumstance, turn off the wireless microphone or transmitter. Then select a channel at which the RF indicator is off. (A channel free from noise or radio wave interference is selected.) Set the same channel on the microphone or transmitter.

Muting Functions

When the MUTING switch is set to ON, the following muting functions work in combination.

(1) Muting by RF input level
As sufficient S/N for the audio output may not be obtained if no RF signal is received or the RF input level is low. The audio output can be muted when the RF input level falls below the muting level (15dBµ).

(2) Tone squelch
The audio output is obtained only when the unit receives an RF signal which includes a specified tone signal. The audio output is muted to eliminate noise which may be heard when the transmitter is turned on/off or the unit receives an interference RF signal.

(3) Noise squelch
The audio output is muted to eliminate noise which may be heard when there is such excessive interference RF signal that the tone squelch does not work.

Notes

To eliminate interference or noise, please note the following.
- Do not use two or more wireless microphones or transmitters whose wireless channels are the same.
- The number of wireless channels actually usable in a multi-channel system may be smaller than the normal capacity of that system if there is interference from TV broadcasting or other RF signals.
- When using two or more WRR-805As, do not directly put one unit upon the other.

Error Messages

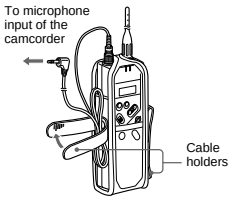
When a problem occurs, one of the following error message may appear on the display.

Messages	Contents	Measures
ERROR 03	The battery voltage exceeds the allowable value.	Use the specified batteries.
ERROR 11	An error occurred in backup memory data.	The memory data is initialized. Reset the group and channel settings.
ERROR 21	The PLL synthesized circuit is in trouble.	Contact your Sony dealer.
ERROR 51	Defect of the A/D converter.	Contact your Sony dealer.

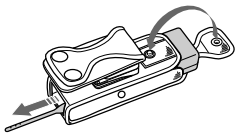
Use of the Soft Case

The soft case can be used as shown below.

Output cable holder

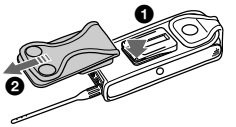


Inserting the unit in reverse direction

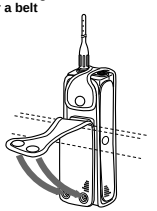


Detaching the belt clip

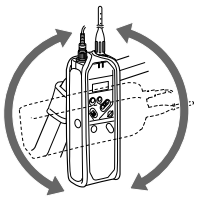
While pressing down the shoe on the case ❶, pull out the belt clip ❷.



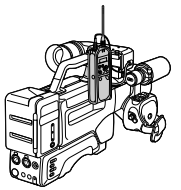
Attaching the unit to a handle or a belt



Turning the unit



Attaching the unit to a camcorder



Specifications

Tuner section

Type of reception	F3E
Circuit system	Dual conversion superheterodyne
Receiving frequencies	
	CE 62 model: 800.000 - 814.000 MHz
	CE 69 model: 854.125 - 862.000 MHz
Local oscillators	Crystal controlled PLL synthesizer
Selectivity	60 dB or more (at ±250 kHz detuned)
Spurious rejection ratio	
	70 dB or more
Image rejection ratio	
	60 dB or more
Muting level	15 dBµ ±5 dBµ
Type of antenna	1/4- wavelength wire
Frequency range	100 Hz to 15,000 Hz ±3 dB
De-emphasis	50 µsec
Signal-to-noise ratio	
	30 dB or more at an A-weighted RF input level of 10 dBµ
	60 dB or more at an A-weighted RF input level of 60 dBµ (±5 kHz deviation at 1 kHz modulation)
Distortion	1% or less (±40 kHz deviation at 1 kHz modulation)
Tone signal frequency	
	32.768 kHz
Output level	–58 dBm (±5 kHz deviation at 1 kHz modulation)
Output impedance	600 ohms
Output connector	3.5 mm dia., balanced

0 dBµ = 1µV
0 dm = 0.775 Vrms (600 ohms loaded)

General

Power requirements	DC 3 V, two batteries LR6 (size AA)
Current consumption	
	Approx. 170 mA
Battery life	Approx. 6 hours of continuous use with two Sony LR6 batteries at 25 °C (77 °F)
Operating temperature	
	0 °C to +50 °C (32 °F to 122 °F)
Storage temperature	–20 °C to +55 °C (–4 °F to +131 °F)
Dimensions	44 × 121 × 24 mm (w/h/d) ($1^{5}/_{8} \times 4^{7}/_{8} \times {}^{31}/_{32}$ inches)
Mass	140 g (6 oz) including batteries
Supplied accessories	
	Attachment case with a belt clip (1)
	Output cable (1)
	Operating instructions (1)

Design and specifications are subject to change without notice.

Wireless Channel Lists / Übertragungskanallisten / Listas de canales inalámbricos

Overview of Channel Plan / Überblick über die Kanäle / Descripción general del plan de canales

Guidance on use of multi-channel system

This product is designed to give excellent interference free operation in multi-channel systems. To maintain this, Sony recommends that one of the original Sony groups, number 01, 02, 03, 04, 13, L1, L2, M1 or M2 is selected.
These groups will offer excellent performance, free from mutual interference from other Sony wireless microphone transmitters in the selected group when used under the recommended operating conditions. The remaining groups are included for compliance with frequency regulations in various countries, and will not always guarantee interference free operation.
Group 00 is used to scan for open channels, or to use only for a one channel system.

Richtlinien für ein Mehrkanalsystem

Dieses Produkt wurde im Hinblick auf hervorragenden interferenzfreien Betrieb in Mehrkanalsystemen entwickelt. Deshalb empfehlen wir, eine der Sony-Kanalgruppen, Nummer 01, 02, 03, 04, 13, L1, L2, M1 oder M2, auszuwählen.
Bei diesen Gruppen erzielen Sie eine außerordentliche Leistung ohne gegenseitige Interferenzen durch andere schnurlose Mikrofonsender von Sony in der ausgewählten Gruppe, vorausgesetzt, die empfohlenen Betriebsbedingungen werden eingehalten. Bei den übrigen Gruppen gelten die Frequenzbestimmungen in verschiedenen Ländern, und ein interferenzfreier Betrieb kann nicht immer gewährleistet werden.
Gruppe 00 dient zum Durchsuchen offener Kanäle bzw. eignet sich für ein Einkanalsystem.

Directrices para el uso de sistemas multicanal

Este producto se ha diseñado para proporcionar una operación excelente sin interferencias en sistemas de múltiples canales. Para esto, Sony recomienda seleccionar uno de los grupos originales de Sony, es decir, los número 01, 02, 03, 04, 13, L1, L2, M1 o M2.
Estos grupos ofrecen un funcionamiento excelente, sin interferencias en ambos sentidos con otros transmisores de micrófono inalámbrico de Sony del grupo seleccionado, siempre que se utilicen en las condiciones de funcionamiento recomendadas. Los demás grupos se han incluido por motivos de compatibilidad con las normas sobre frecuencias de varios países y no siempre garantizarán un funcionamiento sin interferencias.
El grupo 00 sirve para buscar canales abiertos o se utiliza solamente para sistemas de un solo canal.

Model Modell Modelo	Group indication Gruppe-Anzeige Indicación de grupo	Frequency grid Frequenz-raster ID de frecuencia	User group Benutzer-gruppe Grupo de usuarios	No. of simultaneously selectable channels Anzahl der Simultankanäle Canales seleccionables de forma simultánea
CE62	00	125 kHz	Sony	*(111)
	01			8
	02			9
	03			8
	04			10
	13			12
	L1			8
	L2			
	M1			
	M2			
	62A	25 kHz	German-3 Deutsch-3 Alemanes 3	*(7)
	62B			*(8)
	62C			*(7)
	62D			*(7)
	62E		German-4 Deutsch-4 Alemanes 4	*(10)
	63A		German-3 Deutsch-3 Alemanes 3	*(10)
	63B			*(12)
	63C			*(10)
	63D			*(10)

Model Modell Modelo	Group indication Gruppe-Anzeige Indicación de grupo	Frequency grid Frequenz-raster ID de frecuencia	User group Benutzer-gruppe Grupo de usuarios	No. of simultaneously selectable channels Anzahl der Simultankanäle Canales seleccionables de forma simultánea
CE62	63E	25 kHz	German-4 Deutsch-4 Alemanes 4	*(11)
	62		German Deutsch Alemanes	*(241)
	63			*(320)

Sony = Sony original channel groups / Sony-Kanalgruppen / Grupos de canales originales de Sony

German = German User Groups
Deutsch = Deutsche Benutzergruppen
Alemanes = Grupos de usuarios alemanes

*-marked number means a total number of selectable channels (not simultaneously).
Die Anzahl der insgesamt wählbaren Kanäle ist mit einem Stern (*) gekennzeichnet.
Los números marcados con * indican un número total de canales seleccionables (no simultáneos).

Model Modell Modelo	Group indication Gruppe-Anzeige Indicación de grupo	Frequency grid Frequenz-raster ID de frecuencia	User group Benutzer-gruppe Grupo de usuarios	No. of simultaneously selectable channels Anzahl der Simultankanäle Canales seleccionables de forma simultánea
CE69	00	125 kHz	Sony	*(64)
	01			10
	L	25 kHz	UK General Use Allgemeine Verwendung in Groß-britannien Uso general para el Reino Unido	*(7)
	H			*(7)

Sony = Sony original channel groups / Sony-Kanalgruppen / Grupos de canales originales de Sony

German = German User Groups
Deutsch = Deutsche Benutzergruppen
Alemanes = Grupos de usuarios alemanes

*-marked number means a total number of selectable channels (not simultaneously).
Die Anzahl der insgesamt wählbaren Kanäle ist mit einem Stern (*) gekennzeichnet.
Los números marcados con * indican un número total de canales seleccionables (no simultáneos).

CE62 Model / Modell CE62 / Modelo CE62

Sony Original Channel Groups / Sony-Kanalgruppen / Grupos de canales originales de Sony

(Channel spacing=125kHz) /(Kanalabstand = 125 kHz) / (Espaciado entre canales = 125 kHz)
GP/CH indication (example) / GP/CH-Anzeige (Beispiel) / Indicación GP/CH (ejemplo) : 00.62 17

Group 00: 111-channel group (single-channel operation) / **Gruppe 00:** 111-Kanal-Gruppe (Einkanalbetrieb) / Grupo 00: grupo de 111 canales (operación con un solo canal)

TV-62 Band / TV-62-Frequenzbereich / Banda 62 de TV					
WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
62-17	800.125	62-33	802.125	62-49	804.125
62-18	800.250	62-34	802.250	**62-50**	**804.250**
62-19	800.375	62-35	802.375	62-51	804.375
62-20	**800.500**	62-36	802.500	62-52	804.500
62-21	800.625	62-37	802.625	62-53	804.625
62-22	800.750	62-38	802.750	62-54	804.750
62-23	800.875	62-39	802.875	62-55	804.875
62-24	801.000	**62-40**	**803.000**	62-56	805.000
62-25	801.125	62-41	803.125	62-57	805.125
62-26	801.250	62-42	803.250	62-58	805.250
62-27	801.375	62-43	803.375	62-59	805.375
62-28	801.500	62-44	803.500	**62-60**	**805.500**
62-29	801.625	62-45	803.625	62-61	805.625
62-30	**801.750**	62-46	803.750	62-62	805.750
62-31	801.875	62-47	803.875	62-63	805.875
62-32	802.000	62-48	804.000		

WL Channel = Wireless Channel/WL-Kanal = Übertragungskanal/Canal WL = canal inalámbrico

Group 01/Gruppe 01/Grupo 01
8-channel group
8-Kanal-Gruppe
Grupo de 8 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
62-17	800.125
62-21	800.625
62-32	802.000
62-50	804.250
63-10	807.250
63-12	807.500
63-31	809.875
63-58	813.250

Group 02/Gruppe 02/Grupo 02
9-channel group
9-Kanal-Gruppe
Grupo de 9 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
62-18	800.250
62-23	800.875
62-46	803.750
62-56	805.000
62-59	805.375
63-14	807.750
63-22	808.750
63-29	809.625
63-38	810.750

Group 03/Gruppe 03/Grupo 03
8-channel group
8-Kanal-Gruppe
Grupo de 8 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
62-19	800.375
62-30	801.750
62-38	802.750
62-58	805.250
63-08	807.000
63-25	809.125
63-41	811.125
63-62	813.750

Group 04/Gruppe 04/Grupo 04
10-channel group
10-Kanal-Gruppe
Grupo de 10 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
62-20	800.500
62-22	800.750
62-25	801.125
62-29	801.625
62-35	802.375
62-47	803.875
63-06	806.750
63-27	809.375
63-43	811.375
63-60	813.500

Group 13/Gruppe 13/Grupo 13
12-channel group
12-Kanal-Gruppe
Grupo de 12 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
62-17	800.125
62-22	800.750
62-32	802.000
62-34	802.250
62-50	804.250
62-58	805.250
63-15	807.875
63-26	809.250
63-40	811.000
63-46	811.750
63-49	812.125
63-53	812.625

TV-63 Band / TV-63-Frequenzbereich / Banda 63 de TV					
WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
63-00	**806.000**	63-22	808.750	63-44	811.500
63-01	806.125	63-23	808.875	63-45	811.625
63-02	806.250	63-24	809.000	63-46	811.750
63-03	806.375	63-25	809.125	63-47	811.875
63-04	806.500	63-26	809.250	63-48	812.000
63-05	806.625	63-27	809.375	63-49	812.125
63-06	806.750	63-28	809.500	**63-50**	**812.250**
63-07	806.875	63-29	809.625	63-51	812.375
63-08	807.000	**63-30**	**809.750**	63-52	812.500
63-09	807.125	63-31	809.875	63-53	812.625
63-10	**807.250**	63-32	810.000	63-54	812.750
63-11	807.375	63-33	810.125	63-55	812.875
63-12	807.500	63-34	810.250	63-56	813.000
63-13	807.625	63-35	810.375	63-57	813.125
63-14	807.750	63-36	810.500	63-58	813.250
63-15	807.875	63-37	810.625	63-59	813.375
63-16	808.000	63-38	810.750	**63-60**	**813.500**
63-17	808.125	63-39	810.875	63-61	813.625
63-18	808.250	**63-40**	**811.000**	63-62	813.750
63-19	808.375	63-41	811.125	63-63	813.875
63-20	**808.500**	63-42	811.250		
63-21	808.625	63-43	811.375		

Group L1/Gruppe L1/Grupo L1
8-channel group / 8-Kanal-Gruppe/
Grupo de 8 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
62-19	800.375
62-21	800.625
62-27	801.375
62-32	802.000
62-42	803.250
62-51	804.375
62-54	804.750
62-58	805.250

Group L2/Gruppe L2/Grupo L2
8-channel group / 8-Kanal-Gruppe/
Grupo de 8 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
62-22	800.750
62-24	801.000
62-28	801.500
62-38	802.750
62-41	803.125
62-49	804.125
62-56	805.000
62-61	805.625

Group M1/Gruppe M1/GrupoM1
8-channel group / 8-Kanal-Gruppe/
Grupo de 8 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
63-11	807.375
63-13	807.625
63-19	808.375
63-24	809.000
63-34	810.250
63-43	811.375
63-46	811.750
63-50	812.250

Group M2/Gruppe M2/Grupo M2
8-channel group / 8-Kanal-Gruppe/
Grupo de 8 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
63-14	807.750
63-16	808.000
63-20	808.500
63-30	809.750
63-33	810.125
63-41	811.125
63-48	812.000
63-53	812.625

Wireless Channel Lists / Übertragungskanallisten / Listas de canales inalámbricos

German User Group-3 / Deutsche Benutzergruppe-3 / Grupo de usuarios alemanes 3

(Channel spacing=25kHz) / (Kanalabstand= 25 kHz) / (Espaciado entre canales = 25 kHz)
GP/CH indication (example) / GP/CH-Anzeige (Beispiel) / Indicación GP/CH (ejemplo) : 62A 04

Group 62A/Gruppe 62A/Grupo 62A
7-channel group / 7-Kanal-Gruppe/
Grupo de 7 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
62-A04	800.325
62-A05	800.900
62-A06	801.725
62-A07	802.825
62-A08	803.350
62-A09	804.100
62-A10	804.575

Group 62B/Gruppe 62B/Grupo 62B
8-channel group / 8-Kanal-Gruppe/
Grupo de 8 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
62-B05	800.375
62-B06	800.950
62-B07	801.775
62-B08	802.875
62-B09	803.400
62-B10	804.150
62-B11	804.625
62-B12	805.600

Group 62C/Gruppe 62C/Grupo 62C
7-channel group / 7-Kanal-Gruppe/
Grupo de 7 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
62-C04	800.425
62-C05	801.000
62-C06	801.825
62-C07	802.925
62-C08	803.450
62-C09	804.675
62-C10	805.650

Group 62D/Gruppe 62D/Grupo 62D
7-channel group / 7-Kanal-Gruppe /
Grupo de 7 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
62-D04	800.475
62-D05	801.050
62-D06	801.875
62-D07	802.975
62-D08	803.500
62-D09	804.725
62-D10	805.700

Group 63A/Gruppe 63A/Grupo 63A
10-channel group / 10-Kanal-Gruppe /
Grupo de 10 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
63-A01	806.250
63-A02	807.200
63-A03	807.900
63-A04	808.325
63-A05	808.900
63-A06	809.725
63-A07	810.825
63-A08	811.350
63-A09	812.100
63-A10	812.575

Wireless Channel Lists / Übertragungskanallisten / Listas de canales inalámbricos

German User Groups / Deutsche Benutzergruppen / Grupos de usuarios alemanes

(Channel spacing 25kHz) / (Kanalabstand = 25 kHz) / (Espaciado entre canales = 25 kHz)
GP/CH indication (example) / GP/CH-Anzeige (Beispiel) / Indicación GP/CH (ejemplo) : 62 080

Group 62: 241-channel group (single-channel operation) / **Gruppe 62:** 241-Kanal-Gruppe (Einkanalbetrieb) / **Grupo 62:** grupo de 241 canales (operación con un solo canal)
Frequency range: 800.000 to 806.000 MHz / Frequenzbereich: 800,000 bis 806,000 MHz / Rango de frecuencias: 800,000 a 806,000 MHz

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
62-080	**800.000**	62-107	800.675	62-134	801.350	62-161	802.025
62-081	800.025	62-108	800.700	62-135	801.375	62-162	802.050
62-082	800.050	62-109	800.725	62-136	801.400	62-163	802.075
62-083	800.075	**62-110**	**800.750**	62-137	801.425	62-164	802.100
62-084	800.100	62-111	800.775	62-138	801.450	62-165	802.125
62-085	800.125	62-112	800.800	62-139	801.475	62-166	802.150
62-086	800.150	62-113	800.825	**62-140**	**801.500**	62-167	802.175
62-087	800.175	62-114	800.850	62-141	801.525	62-168	802.200
62-088	800.200	62-115	800.875	62-142	801.550	62-169	802.225
62-089	800.225	62-116	800.900	62-143	801.575	**62-170**	**802.250**
62-090	**800.250**	62-117	800.925	62-144	801.600	62-171	802.275
62-091	800.275	62-118	800.950	62-145	801.625	62-172	802.300
62-092	800.300	62-119	800.975	62-146	801.650	62-173	802.325
62-093	800.325	**62-120**	**801.000**	62-147	801.675	62-174	802.350
62-094	800.350	62-121	801.025	62-148	801.700	62-175	802.375
62-095	800.375	62-122	801.050	62-149	801.725	62-176	802.400
62-096	800.400	62-123	801.075	**62-150**	**801.750**	62-177	802.425
62-097	800.425	62-124	801.100	62-151	801.775	62-178	802.450
62-098	800.450	62-125	801.125	62-152	801.800	62-179	802.475
62-099	800.475	62-126	801.150	62-153	801.825	**62-180**	**802.500**
62-100	**800.500**	62-127	801.175	62-154	801.850	62-181	802.525
62-101	800.525	62-128	801.200	62-155	801.875	62-182	802.550
62-102	800.550	62-129	801.225	62-156	801.900	62-183	802.575
62-103	800.575	**62-130**	**801.250**	62-157	801.925	62-184	802.600
62-104	800.600	62-131	801.275	62-158	801.950	62-185	802.625
62-105	800.625	62-132	801.300	62-159	801.975	62-186	802.650
62-106	800.650	62-133	801.325	**62-160**	**802.000**	62-187	802.675

Group 63B/Gruppe 63B/Grupo 63B
12-channel group / 12-Kanal-Gruppe / Grupo de 12 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
63-B01	806.300
63-B02	806.700
63-B03	807.250
63-B04	807.950
63-B05	808.375
63-B06	808.950
63-B07	809.775
63-B08	810.875
63-B09	811.400
63-B10	812.150
63-B11	812.625
63-B12	813.600

Group 63C/Gruppe 63C/Grupo 63C
10-channel group / 10-Kanal-Gruppe / Grupo de 10 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
63-C01	806.350
63-C02	806.750
63-C03	807.300
63-C04	808.425
63-C05	809.000
63-C06	809.825
63-C07	810.925
63-C08	811.450
63-C09	812.675
63-C10	813.650

Group 63D/Gruppe 63D/Grupo 63D
10-channel group / 10-Kanal-Gruppe / Grupo de 10 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
63-D01	806.400
63-D02	806.800
63-D03	807.350
63-D04	808.475
63-D05	809.050
63-D06	809.875
63-D07	810.975
63-D08	811.500
63-D09	812.725
63-D10	813.700

German User Group-4
Deutsche Benutzergruppe-4
Grupo de usuarios alemanes 4

(Channel spacing=25kHz) / (Kanalabstand = 25 kHz) /
(Espaciado entre canales = 25 kHz)
GP/CH indication (example) / GP/CH-Anzeige (Beispiel) /
Indicación GP/CH (ejemplo) : 62E 02

Group 62E/Gruppe 62E/Grupo 62E
10-channel group
10-Kanal-Gruppe
Grupo de 10 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
62-E02	800.525
62-E03	801.100
62-E04	801.425
62-E05	801.975
62-E06	802.575
62-E07	803.050
62-E08	803.700
62-E09	804.800
62-E10	805.050
62-E11	805.775

Group 63E/Gruppe 63E/Grupo 63E
11-channel group
11-Kanal-Gruppe
Grupo de 11 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
63-E01	806.850
63-E02	808.525
63-E03	809.100
63-E04	809.425
63-E05	809.975
63-E06	810.575
63-E07	811.050
63-E08	811.700
63-E09	812.800
63-E10	813.050
63-E11	813.775

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
62-188	802.700	62-222	803.550	62-256	804.400	**62-290**	**805.250**
62-189	802.725	62-223	803.575	62-257	804.425	62-291	805.275
62-190	**802.750**	62-224	803.600	62-258	804.450	62-292	805.300
62-191	802.775	62-225	803.625	62-259	804.475	62-293	805.325
62-192	802.800	62-226	803.650	**62-260**	**804.500**	62-294	805.350
62-193	802.825	62-227	803.675	62-261	804.525	62-295	805.375
62-194	802.850	62-228	803.700	62-262	804.550	62-296	805.400
62-195	802.875	62-229	803.725	62-263	804.575	62-297	805.425
62-196	802.900	**62-230**	**803.750**	62-264	804.600	62-298	805.450
62-197	802.925	62-231	803.775	62-265	804.625	62-299	805.475
62-198	802.950	62-232	803.800	62-266	804.650	**62-300**	**805.500**
62-199	802.975	62-233	803.825	62-267	804.675	62-301	805.525
62-200	**803.000**	62-234	803.850	62-268	804.700	62-302	805.550
62-201	803.025	62-235	803.875	62-269	804.725	62-303	805.575
62-202	803.050	62-236	803.900	**62-270**	**804.750**	62-304	805.600
62-203	803.075	62-237	803.925	62-271	804.775	62-305	805.625
62-204	803.100	62-238	803.950	62-272	804.800	62-306	805.650
62-205	803.125	62-239	803.975	62-273	804.825	62-307	805.675
62-206	803.150	**62-240**	**804.000**	62-274	804.850	62-308	805.700
62-207	803.175	62-241	804.025	62-275	804.875	62-309	805.725
62-208	803.200	62-242	804.050	62-276	804.900	**62-310**	**805.750**
62-209	803.225	62-243	804.075	62-277	804.925	62-311	805.775
62-210	**803.250**	62-244	804.100	62-278	804.950	62-312	805.800
62-211	803.275	62-245	804.125	62-279	804.975	62-313	805.825
62-212	803.300	62-246	804.150	**62-280**	**805.000**	62-314	805.850
62-213	803.325	62-247	804.175	62-281	805.025	62-315	805.875
62-214	803.350	62-248	804.200	62-282	805.050	62-316	805.900
62-215	803.375	62-249	804.225	62-283	805.075	62-317	805.925
62-216	803.400	**62-250**	**804.250**	62-284	805.100	62-318	805.950
62-217	803.425	62-251	804.275	62-285	805.125	62-319	805.975
62-218	803.450	62-252	804.300	62-286	805.150	**62-320**	**806.000**
62-219	803.475	62-253	804.325	62-287	805.175		
62-220	**803.500**	62-254	804.350	62-288	805.200		
62-221	803.525	62-255	804.375	62-289	805.225		

Wireless Channel Lists / Übertragungskanallisten / Listas de canales inalámbricos

GP/CH indication (example) / GP/CH-Anzeige (Beispiel) / Indicación GP/CH (ejemplo): 63 001

Group 63: 320-channel group (single-channel operation) / **Gruppe 63:** 320-Kanal-Gruppe (Einkanalbetrieb) / **Grupo 63:** grupo de 320 canales (operación con un solo canal)

Frequency range: 806.025 to 814.000 MHz / Frequenzbereich: 806,025 bis 814,000 MHz / Rango de frecuencias: 806,025 a 814,000 MHz

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
63-001	806.025	**63-030**	**806.750**	63-059	807.475	63-088	808.200
63-002	806.050	63-031	806.775	**63-060**	**807.500**	63-089	808.225
63-003	806.075	63-032	806.800	63-061	807.525	**63-090**	**808.250**
63-004	806.100	63-033	806.825	63-062	807.550	63-091	808.275
63-005	806.125	63-034	806.850	63-063	807.575	63-092	808.300
63-006	806.150	63-035	806.875	63-064	807.600	63-093	808.325
63-007	806.175	63-036	806.900	63-065	807.625	63-094	808.350
63-008	806.200	63-037	806.925	63-066	807.650	63-095	808.375
63-009	806.225	63-038	806.950	63-067	807.675	63-096	808.400
63-010	**806.250**	63-039	806.975	63-068	807.700	63-097	808.425
63-011	806.275	**63-040**	**807.000**	63-069	807.725	63-098	808.450
63-012	806.300	63-041	807.025	**63-070**	**807.750**	63-099	808.475
63-013	806.325	63-042	807.050	63-071	807.775	**63-100**	**808.500**
63-014	806.350	63-043	807.075	63-072	807.800	63-101	808.525
63-015	806.375	63-044	807.100	63-073	807.825	63-102	808.550
63-016	806.400	63-045	807.125	63-074	807.850	63-103	808.575
63-017	806.425	63-046	807.150	63-075	807.875	63-104	808.600
63-018	806.450	63-047	807.175	63-076	807.900	63-105	808.625
63-019	806.475	63-048	807.200	63-077	807.925	63-106	808.650
63-020	**806.500**	63-049	807.225	63-078	807.950	63-107	808.675
63-021	806.525	**63-050**	**807.250**	63-079	807.975	63-108	808.700
63-022	806.550	63-051	807.275	**63-080**	**808.000**	63-109	808.725
63-023	806.575	63-052	807.300	63-081	808.025	**63-110**	**808.750**
63-024	806.600	63-053	807.325	63-082	808.050	63-111	808.775
63-025	806.625	63-054	807.350	63-083	808.075	63-112	808.800
63-026	806.650	63-055	807.375	63-084	808.100	63-113	808.825
63-027	806.675	63-056	807.400	63-085	808.125	63-114	808.850
63-028	806.700	63-057	807.425	63-086	808.150	63-115	808.875
63-029	806.725	63-058	807.450	63-087	808.175	63-116	808.900

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
63-253	812.325	63-276	812.900	63-299	813.475
63-254	812.350	63-277	812.925	**63-300**	**813.500**
63-255	812.375	63-278	812.950	63-301	813.525
63-256	812.400	63-279	812.975	63-302	813.550
63-257	812.425	**63-280**	**813.000**	63-303	813.575
63-258	812.450	63-281	813.025	63-304	813.600
63-259	812.475	63-282	813.050	63-305	813.625
63-260	**812.500**	63-283	813.075	63-306	813.650
63-261	812.525	63-284	813.100	63-307	813.675
63-262	812.550	63-285	813.125	63-308	813.700
63-263	812.575	63-286	813.150	63-309	813.725
63-264	812.600	63-287	813.175	**63-310**	**813.750**
63-265	812.625	63-288	813.200	63-311	813.775
63-266	812.650	63-289	813.225	63-312	813.800
63-267	812.675	**63-290**	**813.250**	63-313	813.825
63-268	812.700	63-291	813.275	63-314	813.850
63-269	812.725	63-292	813.300	63-315	813.875
63-270	**812.750**	63-293	813.325	63-316	813.900
63-271	812.775	63-294	813.350	63-317	813.925
63-272	812.800	63-295	813.375	63-318	813.950
63-273	812.825	63-296	813.400	63-319	813.975
63-274	812.850	63-297	813.425	**63-320**	**814.000**
63-275	812.875	63-298	813.450		

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
63-117	808.925	63-151	809.775	63-185	810.625	63-219	811.475
63-118	808.950	63-152	809.800	63-186	810.650	**63-220**	**811.500**
63-119	808.975	63-153	809.825	63-187	810.675	63-221	811.525
63-120	**809.000**	63-154	809.850	63-188	810.700	63-222	811.550
63-121	809.025	63-155	809.875	63-189	810.725	63-223	811.575
63-122	809.050	63-156	809.900	**63-190**	**810.750**	63-224	811.600
63-123	809.075	63-157	809.925	63-191	810.775	63-225	811.625
63-124	809.100	63-158	809.950	63-192	810.800	63-226	811.650
63-125	809.125	63-159	809.975	63-193	810.825	63-227	811.675
63-126	809.150	**63-160**	**810.000**	63-194	810.850	63-228	811.700
63-127	809.175	63-161	810.025	63-195	810.875	63-229	811.725
63-128	809.200	63-162	810.050	63-196	810.900	**63-230**	**811.750**
63-129	809.225	63-163	810.075	63-197	810.925	63-231	811.775
63-130	**809.250**	63-164	810.100	63-198	810.950	63-232	811.800
63-131	809.275	63-165	810.125	63-199	810.975	63-233	811.825
63-132	809.300	63-166	810.150	**63-200**	**811.000**	63-234	811.850
63-133	809.325	63-167	810.175	63-201	811.025	63-235	811.875
63-134	809.350	63-168	810.200	63-202	811.050	63-236	811.900
63-135	809.375	63-169	810.225	63-203	811.075	63-237	811.925
63-136	809.400	**63-170**	**810.250**	63-204	811.100	63-238	811.950
63-137	809.425	63-171	810.275	63-205	811.125	63-239	811.975
63-138	809.450	63-172	810.300	63-206	811.150	**63-240**	**812.000**
63-139	809.475	63-173	810.325	63-207	811.175	63-241	812.025
63-140	**809.500**	63-174	810.350	63-208	811.200	63-242	812.050
63-141	809.525	63-175	810.375	63-209	811.225	63-243	812.075
63-142	809.550	63-176	810.400	**63-210**	**811.250**	63-244	812.100
63-143	809.575	63-177	810.425	63-211	811.275	63-245	812.125
63-144	809.600	63-178	810.450	63-212	811.300	63-246	812.150
63-145	809.625	63-179	810.475	63-213	811.325	63-247	812.175
63-146	809.650	**63-180**	**810.500**	63-214	811.350	63-248	812.200
63-147	809.675	63-181	810.525	63-215	811.375	63-249	812.225
63-148	809.700	63-182	810.550	63-216	811.400	**63-250**	**812.250**
63-149	809.725	63-183	810.575	63-217	811.425	63-251	812.275
63-150	**809.750**	63-184	810.600	63-218	811.450	63-252	812.300

CE69 Model / Modell CE69 / Modelo CE69

Sony Original Channel Groups / Sony-Kanalgruppen / Grupos de canales originales de Sony

(Channel spacing 125kHz) / (Kanalabstand = 125 kHz) / (Espaciado entre canales = 125 kHz)
GP/CH indication (example) / GP/CH-Anzeige (Beispiel) / Indicación GP/CH (ejemplo) : 00690 I

Group 00: 64-channel group (single-channel operation) / **Gruppe 00:** 64-Kanal-Gruppe (Einkanalbetrieb) / **Grupo 00:** grupo de 64 canales (operación con un solo canal)

TV-69 Band / TV-69-Frequenzbereich / Banda 69 de TV							
WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia	WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
69-01	854.125	69-17	856.125	69-33	858.125	69-49	860.125
69-02	854.250	69-18	856.250	69-34	858.250	**69-50**	**860.250**
69-03	854.375	69-19	856.375	69-35	858.375	69-51	860.375
69-04	854.500	**69-20**	**856.500**	69-36	858.500	69-52	860.500
69-05	854.625	69-21	856.625	69-37	858.625	69-53	860.625
69-06	854.750	69-22	856.750	69-38	858.750	69-54	860.750
69-07	854.875	69-23	856.875	69-39	858.875	69-55	860.875
69-08	855.000	69-24	857.000	**69-40**	**859.000**	69-56	861.000
69-09	855.125	69-25	857.125	69-41	859.125	69-57	861.125
69-10	**855.250**	69-26	857.250	69-42	859.250	69-58	861.250
69-11	855.375	69-27	857.375	69-43	859.375	69-59	861.375
69-12	855.500	69-28	857.500	69-44	859.500	**69-60**	**861.500**
69-13	855.625	69-29	857.625	69-45	859.625	69-61	861.625
69-14	855.750	**69-30**	**857.750**	69-46	859.750	69-62	861.750
69-15	855.875	69-31	857.875	69-47	859.875	69-63	861.875
69-16	856.000	69-32	858.000	69-48	860.000	69-64	862.000

WL Channel = Wireless Channel / WL-Kanal = Übertragungskanal / Canal WL = canal inalámbrico

Wireless Channel Lists / Übertragungskanallisten / Listas de canales inalámbricos

Group 01/Gruppe 01/Grupo 01
10-channel group
10-Kanal-Gruppe
Grupo de 10 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
69-01	854.125
69-03	854.375
69-07	854.875
69-18	856.250
69-27	857.375
69-34	858.250
69-46	859.750
69-56	861.000
69-59	861.375
69-64	862.000

UK General Use Groups
Gruppen für allgem. Verwendung in Großbritannien
Grupos de uso general para el Reino Unido

(Channel spacing 25kHz) / (Kanalabstand = 25 kHz) /
(Espaciado entre canales = 25 kHz)GP/CH indication (example) /
GP/CH-Anzeige (Beispiel) / Indicación GP/CH (ejemplo) : L UG0 1

Group L/Gruppe L/Grupo L
7-channel group
7-Kanal-Gruppe
Grupo de 7 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
UG-01	854.900
UG-02	855.275
UG-03	855.900
UG-04	856.175
UG-05	856.575
UG-06	857.625
UG-07	857.950

Group H/Gruppe H/Grupo H
7-channel group
7-Kanal-Gruppe
Grupo de 7 canales

WL Channel WL-Kanal Canal WL	Frequency Frequenz (MHz) Frecuencia
UG-08	858.200
UG-09	858.650
UG-10	860.400
UG-11	860.900
UG-12	861.200
UG-13	861.550
UG-14	861.750

SONY

3-866-674-**31** (1)

UHF Synthesized Portable Tuner

Operating Instructions

WRR-805A

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AU66

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Overview

The WRR-805A is a highly reliable portable tuner for the 800 MHz band Sony UHF wireless microphone system to be used for broadcast or movie production purposes.
This tuner is suitable for Electronic News Gathering (ENG) and Electronic Field Production (EFP).

Features

Phase Locked Loop (PLL) synthesized system
The WRR-805A has a refined phase locked loop (PLL) synthesizer circuit.

Preprogrammed wireless channel plans for simultaneous multi channel operation
The WRR-805A has many preprogrammed channel groups, meaning combination of wireless channels to permit simultaneous operation of multiple channels without intermodulation.
Any available group and channel can be selected with a simple button operation.

Compact and lightweight
Mounting technology and the versatile soft case enable this compact and lightweight tuner, which lets you move anywhere for Electronic News Gathering (ENG) and Electronic Field Production (EFP).

Remote battery alarm from transmitter
This tuner has capability of receiving “Battery status information” from the transmitter WRT-805A/822A to make advance warning of battery depletion.
The information is sent in approx. one hour advance to battery exhaust so that you can safely replace the batteries of the transmitter.

Operation powered by easily available batteries
The built-in high efficiency DC-DC converter allows stable operation, for about 6 hours continuously, with two LR6 (size AA) alkaline batteries.

LCD for coordinated operation control
The built-in CPU controls operation of the unit, including the PLL circuit function. The LCD shows the current channel number/frequency, the residual battery power, AF output level and RF input level.
An accumulated operation time indication is also provided for simple control of the time of battery use (in one-minute increments).

Saved channel setting
The unit stores the channel setting when it is turned off. The saved settings are retained even if the batteries are removed. Therefore, when using the unit next time, you need not make the same settings again.

http://getMANUAL.com

Overview

Wide dynamic range
The compander (compressor expander) system enables stable reception over a wide dynamic range.

Output monitoring
The audio output can be monitored through headphones (either of stereo or monaural). The monitoring level is adjustable.

Muting switch for noise elimination

System Configuration

The WRR-805A can be used with the WRT-805A/820A/822A/860A UHF synthesized transmitter or the WRT-810A/830A/867A UHF synthesized wireless microphone.

Sony 800 MHz band system models

Frequency band		Model name	
TV channel	Frequency (MHz)	Transmitter or microphone	Tuner
66	792.250 - 798.500	WRT-805A(66) WRT-810A(66) WRT-820A(66)	WRR-805A(66) WRR-810A(66) WRR-840A(66)[a] WRR-860A(66)
67	799.250 - 805.500		

a) For this models, the AN-820A UHF antenna and the WD-820A UHF antenna divider are required.

Wireless Channels Selectable

Note

This product is designed to give excellent interference free operation in multi-channel systems. To maintain this, Sony recommends that one of the original Sony groups, number 11, 12, 13, A1, A2, A3, L1, L2, M1, M2, H1 or H2 is selected.
These groups will offer excellent performance, free from mutual interference from other Sony wireless microphone transmitters in the selected group when used under the recommended operating conditions.
Group 00 is used to scan for open channels, or to use only for a one channel system.

Each “wireless channel” is represented by a 2-digit TV channel number followed by another 2-digit number, for example: 66-01.

Wireless Channels Selectable

Group 00: All channel access
Use to scan for open channels.
Use only for a one channel system.

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
66-01	792.250	66-27	795.500	67-01	799.250	67-27	802.500
66-02	792.375	66-28	795.625	67-02	799.375	67-28	802.625
66-03	792.500	66-29	795.750	67-03	799.500	67-29	802.750
66-04	792.625	**66-30**	**795.875**	67-04	799.625	**67-30**	**802.875**
66-05	792.750	66-31	796.000	67-05	799.750	67-31	803.000
66-06	792.875	66-32	796.125	67-06	799.875	67-32	803.125
66-07	793.000	66-33	796.250	67-07	800.000	67-33	803.250
66-08	793.125	66-34	796.375	67-08	800.125	67-34	803.375
66-09	793.250	66-35	796.500	67-09	800.250	67-35	803.500
66-10	**793.375**	66-36	796.625	**67-10**	**800.375**	67-36	803.625
66-11	793.500	66-37	796.750	67-11	800.500	67-37	803.750
66-12	793.625	66-38	796.875	67-12	800.625	67-38	803.875
66-13	793.750	66-39	797.000	67-13	800.750	67-39	804.000
66-14	793.875	**66-40**	**797.125**	67-14	800.875	**67-40**	**804.125**
66-15	794.000	66-41	797.250	67-15	801.000	67-41	804.250
66-16	794.125	66-42	797.375	67-16	801.125	67-42	804.375
66-17	794.250	66-43	797.500	67-17	801.250	67-43	804.500
66-18	794.375	66-44	797.625	67-18	801.375	67-44	804.625
66-19	794.500	66-45	797.750	67-19	801.500	67-45	804.750
66-20	**794.625**	66-46	797.875	**67-20**	**801.625**	67-46	804.875
66-21	794.750	66-47	798.000	67-21	801.750	67-47	805.000
66-22	794.875	66-48	798.125	67-22	801.875	67-48	805.125
66-23	795.000	66-49	798.250	67-23	802.000	67-49	805.250
66-24	795.125	**66-50**	**798.375**	67-24	802.125	**67-50**	**805.375**
66-25	795.250	66-51	798.500	67-25	802.250	67-51	805.500
66-26	795.375			67-26	802.375		

Group 11: 11-channel group
Use when both TV channels 66 and 67 are available.

Channel	Frequency (MHz)
66-02	792.375
66-07	793.000
66-17	794.250
66-19	794.500
66-35	796.500
66-43	797.500
67-08	800.125
67-19	801.500
67-33	803.250
67-39	804.000
67-42	804.375
67-46	804.875

Group 12: 9-channel group
Use when TV channel 66 is on the air.

Channel	Frequency (MHz)
67-01	799.250
67-03	799.500
67-11	800.500
67-16	801.125
67-23	802.000
67-27	802.500
67-41	804.250
67-44	804.625
67-50	805.375

Group 13: 9-channel group
Use when TV channel 67 is on the air.

Channel	Frequency (MHz)
66-01	792.250
66-03	792.500
66-11	793.500
66-16	794.125
66-23	795.000
66-27	795.500
66-41	797.250
66-44	797.625
66-50	798.375

Group A1: 8-channel group
Use when both TV channels 66 and 67 are available.

Channel	Frequency (MHz)
66-02	792.375
66-04	792.625
66-12	793.625
66-24	795.125
67-02	799.375
67-29	802.750
67-35	803.500
67-44	804.625

Group A2: 6-channel group
Use when TV channel 66 is on the air.

Channel	Frequency (MHz)
67-06	799.875
67-15	801.000
67-21	801.750
67-32	803.125
67-46	804.875
67-50	805.375

Group A3: 6-channel group
Use when TV channel 67 is on the air.

Channel	Frequency (MHz)
66-06	792.875
66-15	794.000
66-21	794.750
66-32	796.125
66-46	797.875
66-50	798.375

Group L1: 6-channel group
Use when TV channel 67 is on the air.

Channel	Frequency (MHz)
66-01	792.250
66-03	792.500
66-09	793.250
66-14	793.875
66-18	794.375
66-21	794.750

Group L2: 6-channel group
Use when TV channel 67 is on the air.

Channel	Frequency (MHz)
66-02	792.375
66-04	792.625
66-10	793.375
66-15	794.000
66-19	794.500
66-22	794.875

Group M1: 6-channel group
Use when TV channel 67 is on the air.

Channel	Frequency (MHz)
66-31	796.000
66-33	796.250
66-39	797.000
66-44	797.625
66-48	798.125
66-51	798.500

Group M2: 5-channel group
Use when TV channel 67 is on the air.

Channel	Frequency (MHz)
66-32	796.125
66-34	796.375
66-40	797.125
66-45	797.750
66-49	798.250

Group H1: 8-channel group
Use when TV channel 66 is on the air.

Channel	Frequency (MHz)
67-03	799.500
67-05	799.750
67-11	800.500
67-16	801.125
67-26	802.375
67-35	803.500
67-38	803.875
67-42	804.375

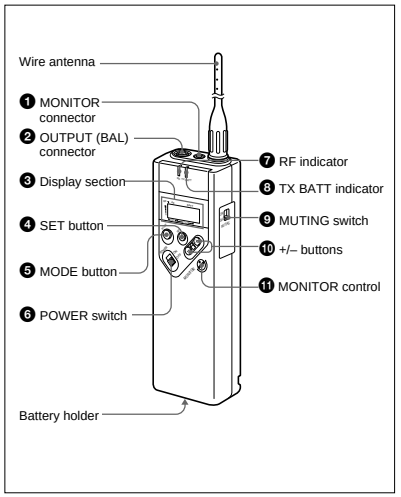
Group H2: 8-channel group
Use when TV channel 66 is on the air.

Channel	Frequency (MHz)
67-06	799.875
67-08	800.125
67-12	800.625
67-22	801.875
67-25	802.250
67-33	803.250
67-40	804.125
67-45	804.750

Precautions

- The unit is designed for use in ambient temperature range of 0°C to 50°C (32°F to 122°F).
- Do not place the unit on or near heat sources, such as lighting equipment, power amplifiers, or in a place subject to direct sunlight or excessive moisture. In such places, the external finish or internal parts of the unit may be damaged.
- If the unit is used in a very humid or dusty place or in a place subject to an active gas, clean its surface as well as the connectors with a dry, soft cloth soon after use. Lengthy use of the unit in such places or not cleaning it after its use in such places may shorten its life.
- When cleaning the unit, never use organic solvents such as thinners or benzine, which will damage the finish of the unit.
- The unit has been factory adjusted precisely. Do not tamper with its internal parts or attempt to repair it.

Parts Identification



In Accumulated time indication, it displays the accumulated time of battery use (in one-minute increments).
See "Settings" on page 12.

❹ SET button
Press to change and set the contents of the item on the display.
See "Settings" on page 12.

❺ MODE button
Press to select the item to be set on the display.
See "Settings" on page 12.

❻ POWER switch
Turns the power of the tuner ON or OFF.

❼ RF (radio frequency) indicator
Indicates the strength of the RF input signal.
On in green: more than 25 dBμ
On in red: between 15 dBμ and 25 dBμ
Off: less than 15 dBμ (less than muting level)

❽ TX BATT (transmitter battery) indicator
Indicates the battery condition of the wireless microphone transmitter. The indicator starts flashing about one hour before the transmitter batteries go flat.

❾ MUTING switch
Set to ON to eliminate the noise and signal interference when the tuner is in signal reception standby mode.
See "Muting Functions" on page 15.

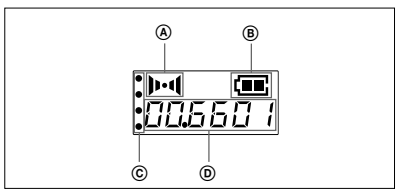
❿ + (+ selection) / – (– selection/reset) buttons
In setting mode, select the receiving group, channel and frequency using either of these buttons, or reset the time-of-use indication to "00:00" with the – button.
See "Settings" on page 12.

⓫ MONITOR control
Turn to adjust the monitoring level through headphones.

❶ MONITOR connector
To monitor the audio output signal, connect the headphones equipped with 3.5 mm dia. stereo mini jack. You can use either of stereo or monaural headphones. The monitoring level can be adjusted with the MONITOR control.

❷ OUTPUT (BAL) connector
Supplies audio signals. You can connect this connector to the microphone input connector of a Camcorder, mixer, or tape recorder by using the supplied cable.

❸ Display section
Shows the status of the tuner and the groups and channels assigned to the unit.

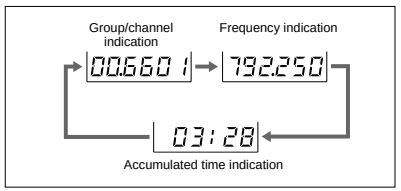


Ⓐ AF (audio frequency) indication
Lights when the output audio signal is over the reference level.

Ⓑ BATT (battery) indication
Displays the status of the batteries of this unit.
See "Battery indication" on page 11.

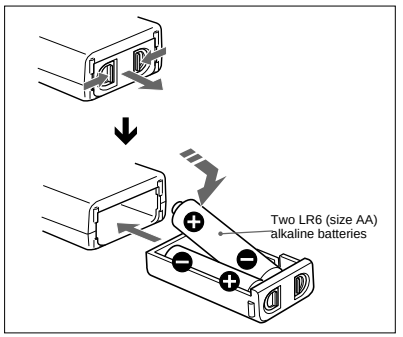
Ⓒ RF (radio frequency) indications
The dot indications show the RF input level. Depending on the RF input level, the number of dots changes as below.
Four dots on: more than 45 dBμ
Three dots on: between 35 dBμ and 45 dBμ
Two dots on: between 25 dBμ and 35 dBμ
One dot on: between 15 dBμ and 25 dBμ
No dot: less than 15 dBμ

Ⓓ GP/CH (group/channel) indication
Shows the reception channel group and respective channel number.
Each time you press the MODE button the group/channel indication changes to the frequency and accumulated time indications as shown below.



Power Supply

The tuner can operate on two LR6 (size AA) alkaline batteries continuously for about 6 hours at 25°C (77°F).



Installing the batteries

1 Slide the battery-holder catches inward (in the direction of the arrows ➡ ⬅) to take out the battery holder.

2 Match the polarities and insert the batteries.

3 Set the battery holder in the original position.

Battery indication

When you turn the power on, the battery status of this unit appears in the BATT indication on the display section.

	1	2	3	4
BATT indication	Lights	Lights	Flashes	Goes off
Battery condition	Good	Less than half-charge	Almost exhausted	Completely exhausted

Note

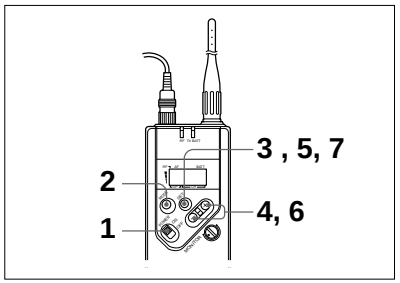
The indication may be incorrect if the batteries are not new when installed. If you plan to use the tuner for a long period, it is best to replace the batteries with new ones.

Notes on batteries

- Use new alkaline batteries.
- Do not pair different types of batteries.
- Always replace the two batteries together.
- The batteries are not rechargeable.
- Be careful to install the batteries with the correct polarity.
- When not using the tuner for a long period, remove the batteries to avoid leakage. If the batteries do leak, clean all leakage from the battery holder case and the unit. Leakage left in the holder case and the unit may cause poor battery contact. If there seems to be poor battery contact, consult your Sony dealer.

Settings

Wireless Channel Selection



Note

Noise may occur when the power is turned on or off. Be sure to turn down the input level of the connected equipment before operating the POWER switch.

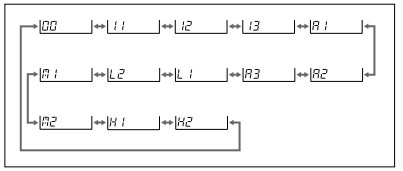
1 Set the POWER switch to ON.
The display shows the same status as before the tuner was last turned off.
If the group name and channel number is shown on the display, skip step **2** and proceed with step **3**.

2 Press the MODE button until the group name and channel number appear on the display.

3 Press the SET button.
The tuner enters in group selection mode and the group name flashes on the GP section.

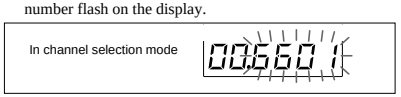
4 Press the + or – button to select the group.
Pressing the + button cyclically changes the group indication in the order of "Wireless Channels Selectable" on page 5 to 7.
Pressing the – button changes it in the reversed order.

If you hold either button pressed, the group setting will change continuously.



When no button is pressed for more than 30 seconds, the group selection mode or the subsequent wireless channel selection mode is automatically released.

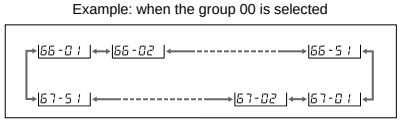
5 Once the desired group indication appears, press the SET button.
The group selected is set.
The tuner now enters the wireless channel selection mode, and both of the TV channel number and two digits number flash on the display.



6 Press the + or – button to select the channel.
Pressing the + button cyclically changes the channel indication in the order shown in the table of the selected group in "Wireless Channels Selectable" on page 5 to 7.
Pressing the – button changes it in the reversed order.

If you keep either button pressed, the channel number will be incremented or decremented continuously.

Example: when the group 00 is selected



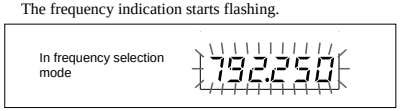
7 Once the desired wireless channel is displayed, press the SET button.

The display stops flashings, and the selected group and wireless channel are stored in memory.

To select the channel by frequency indication

1 Turn on the unit and press the MODE button until the frequency indication appears on the display.

2 Press the SET button.
The frequency indication starts flashing.



3 Press the + or – button to select the channel frequency.

4 Once the desired frequency is displayed, press the SET button.

The display stops flashing, and the selected channel frequency is now stored in memory.

Notes

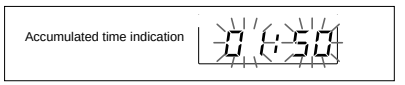
- Do not remove the batteries during group and wireless channel selection. If they are inadvertently removed, re-insert them immediately and repeat the steps on pages 12 to 13 from the beginning.
- Make sure that the channel selected is the same as that selected on the transmitter used in the same system.
- Depending on the noise or interference conditions, the selectable channels may not necessarily all be usable. If necessary, you can determine the usable channels by stepping the channel selection through a number of channels on the tuner with the microphone/transmitter set to OFF. Those channels on which the RF indicator of the tuner does not light are usable.
- If there is a TV broadcasting station near by, do not use the station's channel.
- The unit may not operate correctly if it is turned on again immediately after turning off the power while in setting mode. Pause for a few seconds or more before turning on the power again.
- When operating two or more UHF wireless microphone systems using channels in different groups, ensure that the systems are at least 100m (330 feet) apart from each other. (The same applies also when using channels in a group if the different UHF wireless microphone systems are installed where they are within sight of each other.)

Resetting the Accumulated Time Indication

The time indication accumulates time in hours and minutes when the WRR-805A is on.
Reset the indication to "00:00" whenever you replace the batteries so that it can display the running time of the batteries.

1 Press the MODE button until the accumulated time appears on the display.

2 Press the SET button.



3 Press the – button.
The time indication resets to "00:00."
While you see "00:00" is flashing, you can go back to previous value by pressing the + button.

4 Press the SET button.

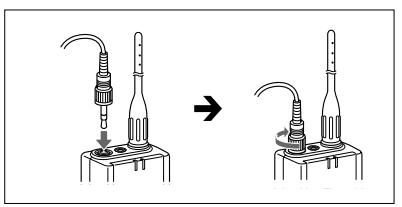
Connections

Caution

When connecting the unit to a camcorder, be sure to turn the unit off.

Connect the OUTPUT (BAL) connector to the microphone input connector on DSR-200, DCR VX-1000 or other camcorders by using the supplied cable.

To secure the output cable connection, be sure to turn and lock the connector cover as illustrated below.



For attaching the unit to a camcorder, see "Usae of the Soft Case" on page 17.

To monitor audio output, connect the headphones to the MONITOR connector. The monitoring level can be adjusted by turning the MONITOR control.

Microphone System Operation

1 Set the MUTING switch ON before turning on the tuner.

2 Turn the POWER switch on.

3 Set the reception channel.
For details on setting the channels, see page 12.

4 Set the MUTING switch OFF, and turn on the transmitter or the wireless microphone.

Muting Functions

When the MUTING switch is set to ON, the following muting functions work in combination.

(1) Muting by RF input level
As sufficient S/N for the audio output may not be obtained if no RF signal is received or the RF input level is low. The audio output can be muted when the RF input level falls below the muting level (15dBμ).

(2) Tone squelch
The audio output is obtained only when the unit receives an RF signal which includes a specified tone signal. The audio output is muted to eliminate noise which may be heard when the transmitter is turned on/off or the unit receives an interference RF signal.

(3) Noise squelch

The audio output is muted to eliminate noise which may be heard when there is such excessive interference RF signal that the tone squelch does not work.

Notes

To eliminate interference or noise, please note the following.

- Do not use two or more wireless microphones or transmitters whose wireless channels are the same.
- The number of wireless channels actually usable in a multi-channel system may be smaller than the normal capacity of that system if there is interference from TV broadcasting or other RF signals.
- When using two or more WRR-805As, do not directly put one unit upon the other

Error Messages

When a problem occurs, one of the following error message may appear on the display.

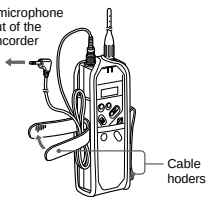
Messages	Contents	Measures
ERROR 03	The battery voltage exceeds the allowable value.	Use the specified batteries.
ERROR 11	An error occurred in backup memory data.	The memory data is initialized. Reset the group and channel settings.
ERROR 21	The PLL synthesized circuit is in trouble.	Contact your Sony dealer.
ERROR 51	Defect of the A/D converter.	Contact your Sony dealer.

Use of the Soft Case

The soft case can be used as shown below.

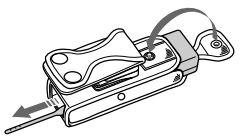
Output cable holder

To microphone input of the camcorder



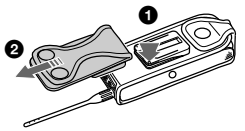
Inserting the unit in reverse direction

MONITOR connector can be used without hindrance.

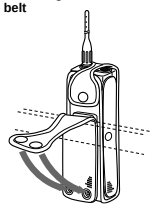


Detaching the belt clip

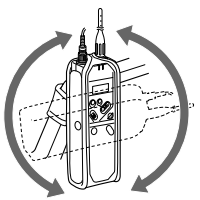
While pressing down the shoe on the case ❶, pull out the belt clip ❷.



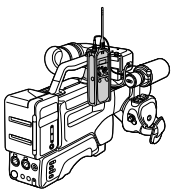
Attaching the unit to a handle or a belt



Turning the unit



Attaching the unit to a camcorder



Specifications

Tuner section

Type of reception	F3E
Circuit system	Dual conversion superheterodyne
Receiving frequencies	792 - 806 MHz (TV channels 66 and 67)
Local oscillators	Crystal controlled PLL synthesizer
Selectivity	60 dB or more (at ±250 kHz detuned)
Spurious rejection ratio	70 dB or more
Image rejection ratio	60 dB or more
Muting level	15 dBμ ±5 dBμ
Type of antenna	1/4-wavelength wire
Frequency range	100 Hz to 15,000 Hz ±3 dB
De-emphasis	50 μsec
Signal-to-noise ratio	30 dB or more at an A-weighted RF input level of 10 dBμ 60 dB or more at an A-weighted RF input level of 60 dBμ (±5 kHz deviation at 1 kHz modulation)
Distortion	1% or less (±40 kHz deviation at 1 kHz modulation)
Tone signal frequency	32.768 kHz
Output level	–58 dBm (±5 kHz deviation at 1 kHz modulation)
Output impedance	600 ohms, balanced
Output connector	3.5 mm dia. , balanced

0 dBμ = 1μV
0 dm = 0.775 Vrms (600 ohms loaded)

General

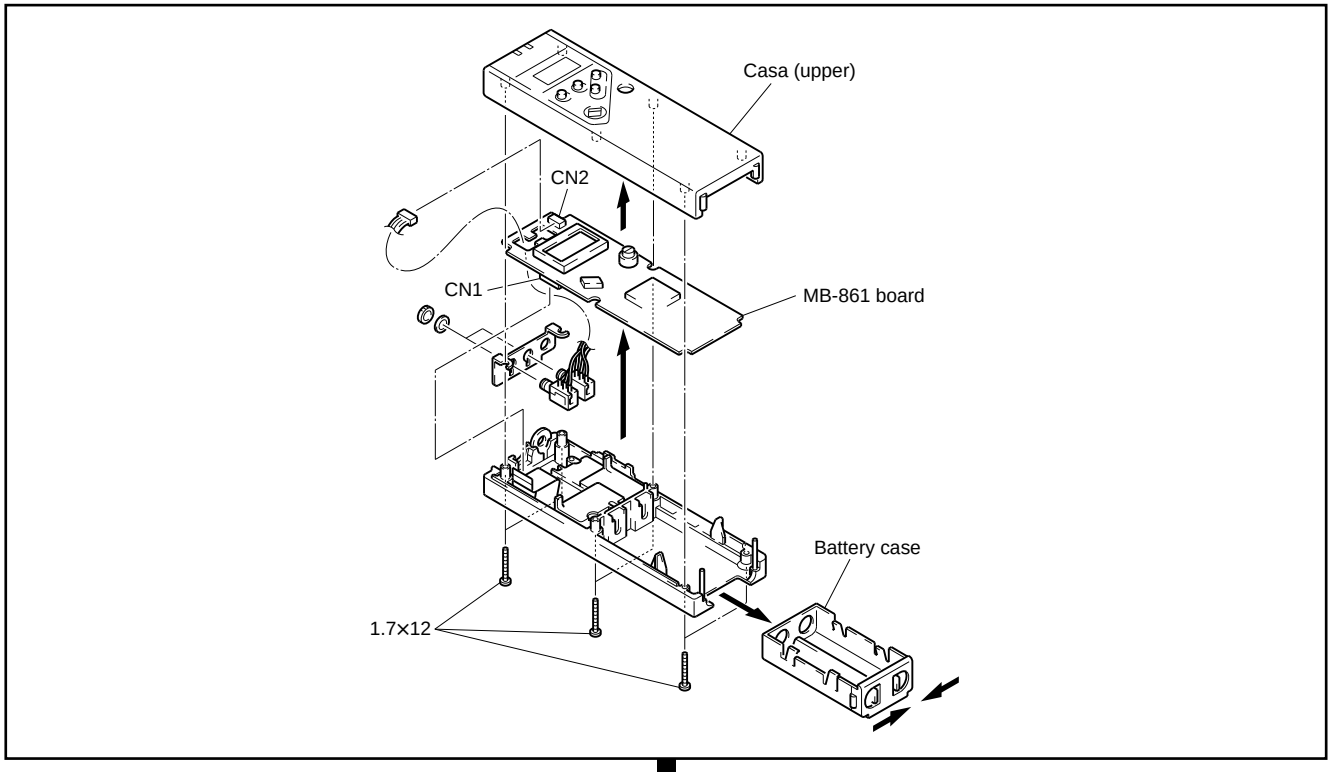
Power requirements	DC 3 V, two batteries LR6 (size AA)
Current consumption	Approx. 170 mA
Battery life	Approx. 6 hours of continuous use with two Sony LR6 batteries at 25°C
Operating temperature	0°C to +50°C (32°F to 122°F)
Storage temperature	–20°C to +55°C (–4°F to +131°F)
Dimensions	44 × 121 × 24 mm (w/h/d) ($1^{5}/_{8} \times 4^{7}/_{8} \times {}^{31}/_{32}$ inches)
Mass	140 g (6 oz) including batteries
Supplied accessories	Attachment case with a belt clip (1) Output cable (1) Operating instructions (1)

Design and specifications are subject to change without notice.

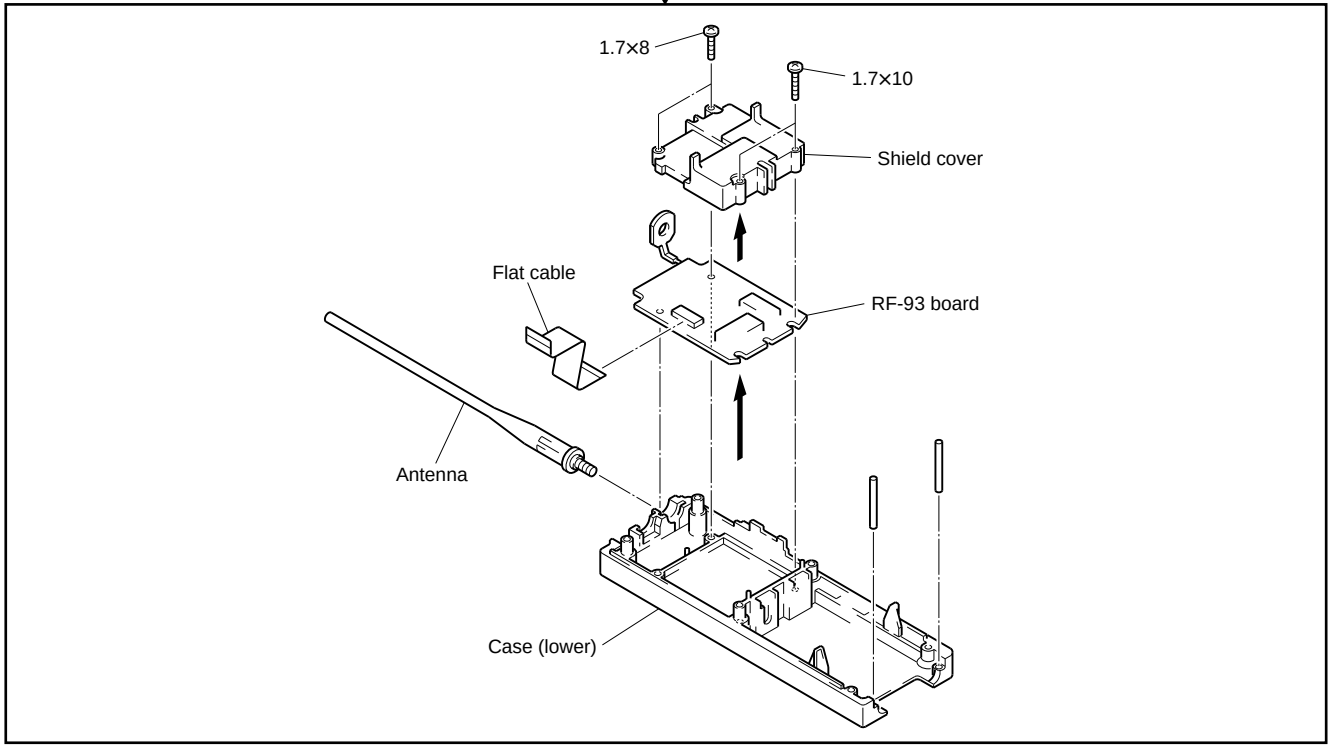
SECTION 2
SERVICE OVERVIEW

2-1. DISASSEMBLY

MB-861 Board/Battery case/Case (Upper)



Antenna/RF-93 Board/Case (Lower)



2-2. NOTES ON PARTS REPLACEMENT

2-2-1. EEPROM (IC604/MB-861 board) Replacement

If the EEPROM (IC604 on the MB-861 board) is replaced, do the following.
When the power of the WRR-805A is turned on for the first time after the replacement:

1. "Error 11" appears on the LCD, and data is automatically initialized.
   After initialization is complete, "62-17" (For CE62 model), "69-01" (For CE69 model) or "66-01" (For AU66 model) appears on the LCD.
2. After "62-17" (For CE62 model), "69-01" (For CE69 model) or "66-01" (For AU66 model) is displayed, perform section "3-2-3. Muting Level and RF Level Adjustment".

2-3. ERROR MESSAGES

When a problem occurs, one of the following error messages may appear on the display.

Messages	Contents	Measures
Error 03	The battery voltage exceeds the allowable value.	Use the specified batteries.
Error 11	An error occurred in backupmemory data.	The data was initialized. Set the receiving channel.
Error 21	The PLL synthesized circuit is in trouble.	Check the PLL synthesized circuit (IC202,CP201, and its peripheral circuit) on RF-93 board.

SECTION 3
ELECTRICAL ALIGNMENT

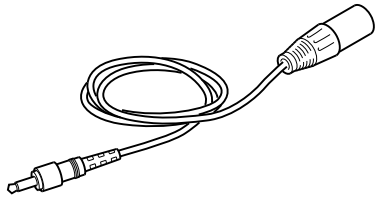
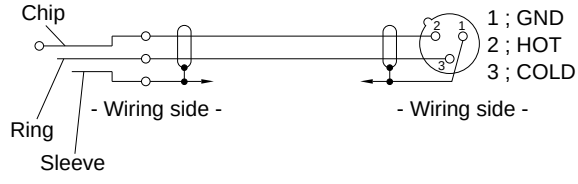
3-1. PREPARATION

3-1-1. Equipment and Tools

Equipment

Name	Specifications	Model name
DC power supply	+3.00 ±0.02 Vdc output	–
Signal generator	Frequency : 100 kHz to 1040 MHz	HEWLETT PACKARD 8657A or equivalent
DC volt meter (Multi Meter)	Effective digits: $3^1/_2$ digits	HEWLETT PACKARD 34401A or equivalent
Audio analyzer	Frequency : 20 Hz to 100 kHz Filter(included) : A-weighted filter	HEWLETT PACKARD 8903B or equivalent
Frequency Counter	Frequency : 1 Hz to 225 MHz	HEWLETT PACKARD 53181A or equivalent
Noise meter	Frequency: 10 Hz to 500 kHz	MEGURO MN-445B or equivalent
	Function generator 32.768 kHz (and 32.782 kHz) signal (sine wave) can be generated. Adjustment can be 0.1 Hz step the specification.	HEWLETT PACKARD 8904A or equivalent
Mic amp	Gain : 0 dB to 70 dB	–
	(with A-weighted filter)	
Oscilloscope	Frequency: DC to 30 MHz	–

Tools

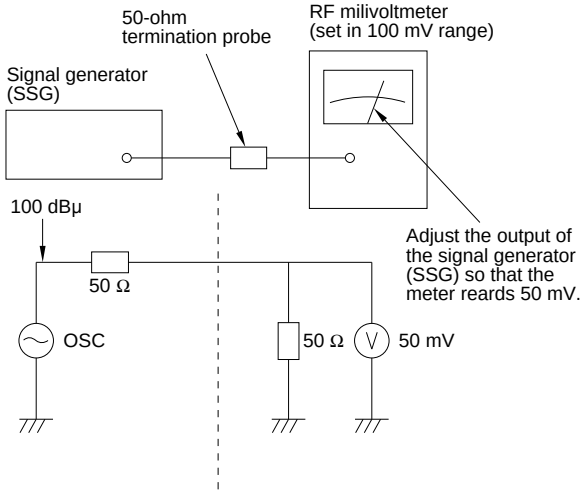
Name	Part No.	Remarks
MM-SMA Conversion connector	J-6402-480-A	
SMA-BNC Conversion connector	J-6402-490-A	
AF Input/Output Cable	Sony K-1334 or equivalent	 • Wiring diagram 3-pole mini Phone plug (ø 3.5) XLR, 3P connector (male) 
Adjuster (0.4 x 1.3 mm)	7-221-652-81	Screwdriver for adjustment

3-1-2. Notes on Adjustment

The RF level of the input signal(output level of the signal generator) for adjustment is expressed as open ended voltage in unit dBμ (0 dBμ = 1μV).
The adjustment is to be performed by calibration the output level of the signal generator as shown below.

Calibration method

(1) Connect the RF milli-voltmeter to the signal generator as shown in the figure below.
(2) Adjust the level of the output signal from the signal generator (SSG) so that the RF milli-voltmeter reads 50 mV. The level of the output signal from the signal generator (SSG) when RF milli- voltmeter reads 50 mV shall be specified as 100 dBμ (at no load).



3-2. ADJUSTMENT AND CHECKING

This section describes the following adjustments (and checking) required to satisfy the specifications.

Adjustment and Checking Item

3-2-1. Reference Frequency (4 MHz oscillation frequency) Adjustment
3-2-2. Muting level and RF level adjustment
3-2-3. Output level adjustment
3-2-4. S/N checking
3-2-5. Distortion ratio checking
3-2-6. RF indicator level checking

Note

0 dBμV_{EMF} = −113 dBm
(EMF = Electromotive force)
0 dBm = 1 mW at 50 ohm loaded

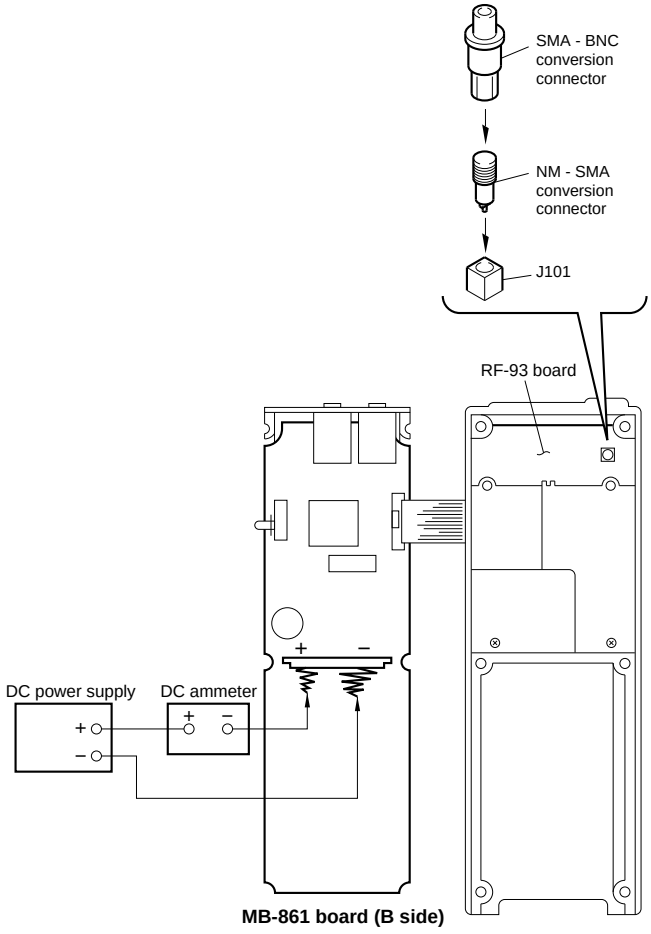
1. Preparation

(1) When adjustments/checking are performed, remove the case(upper) and antenna from the WRR-805A unit.

(2) Connect between the connector CN1 of MB-861 board and connector CN3 of the RF-93board with harness as shown in the figure below.

(3) Connect the MM-SMA conversion connector (J-6402-480-A) with SMA-BNC conversion connector (J-6402-490-A) to the antenna connector (J101) on the MB-861 board as below.

(4) Connect a DC power supply as shown in the figure below.



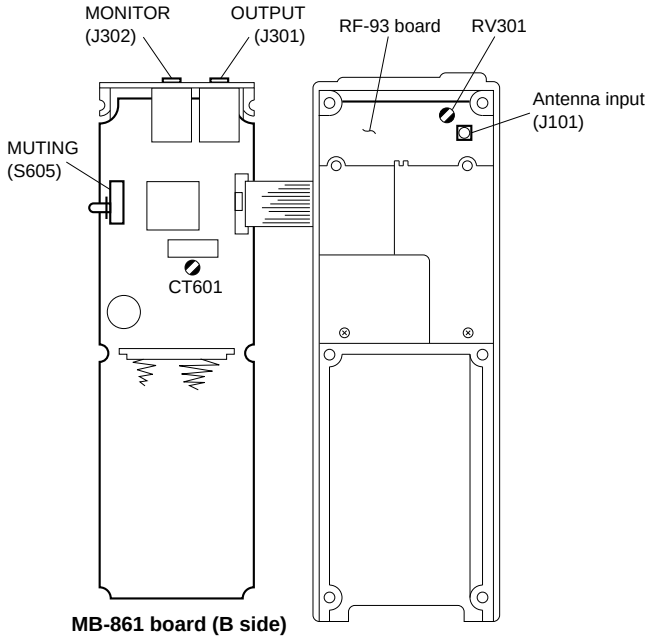
MB-861 board (B side)

Checking

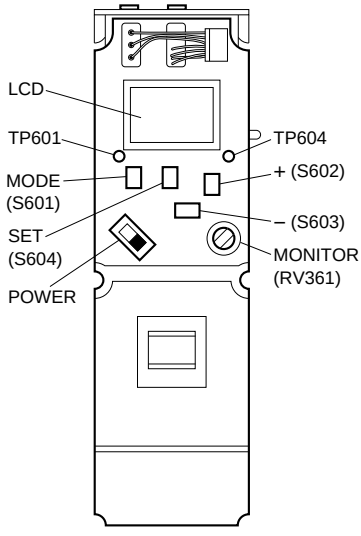
After the DC power supply connection is completed, set the POWER switch (S501) to on, check the level on the DC ammeter.

DC ammeter indication level
(under no-RF signal input and MUTING OFF mode) :
170 ± 5 mA

2. Adjustment Location



MB-861 board (B side)

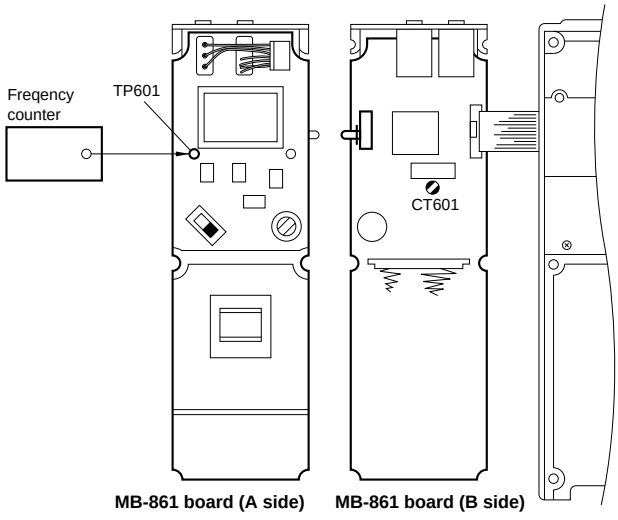


MB-861 board (A side)

3-2-1. Reference Frequency (4 MHz oscillation frequency) Adjustment

Equipment and Tools Required
DC power supply : + 3.00 Vdc ±0.02 V
Frequency counter

Connection/Adjustment Location



Switch and Control Setting

MONITOR control (RV361) : Minimum position
MUTING switch (S605) : OFF
Channel setting : Setting of the channel is to be perform with the MODE switch (S601) , SET switch (S604) , "+" switch (S602) and "−" switch (S603).

CE62 model :
Group 00, 6301 channel (806.125 MHz)
CE69 model :
Group 00, 6933 channel (858.125 MHz)
AU66 model :
Group 00, 6701 channel (799.250 MHz)

Procedure

(1) Connect the frequency counter to the TP601 on the MB-861 board (A-side).
(2) Adjustment
Specification : Frequency at TP601/MB-861 board (A side) = 4.000 MHz ±60 Hz
Adjustment : ⊘ CT601/MB-861 board (B side)

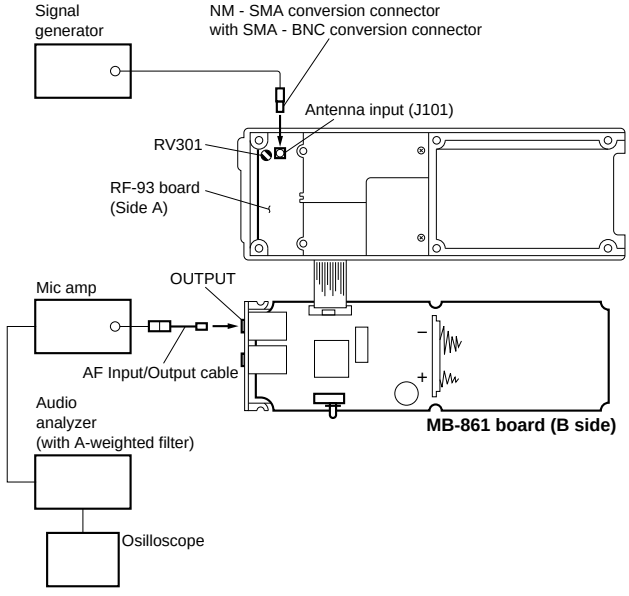
3-2-2. Output level adjustment

Perform this adjustment when the OUTPUT connector levels deviate from the specification.

Equipment and Tools

DC power supply: +3.00 Vdc ±0.02 V
Audio analyzer (level meter, distortion meter)
Mic amp (Noise meter)
Oscilloscope
MM-SMA conversion connector (Part No. J-6402-480-A)
SMA-BNC conversion connector (Part No.J-6402-490-A)
AF Input/Output cable (Sony K-1334 or equivalent)
Adjuster (0.4 × 1.3 mm) : (Part No. 7-221-652-81)

Connection/Adjustment Location



Switch and Control Setting

MONITOR control(RV361) : Minimum position
MUTING switch (S605) : OFF
Channel setting : Setting of the channel is to be perform with the MODE switch (S601) , SET switch (S604) , "+" switch (S602) and "−" switch (S603).

CE62 model :
Group 00, 6301 channel (806.125 MHz)
CE69 model :
Group 00, 6933 channel (858.125 MHz)
AU66 model :
Group 00, 6701 channel (799.250 MHz)

http://getMANUAL.com

Procedure

(1) Connect the audio analyzer to the OUTPUT connector via MIC amp.
(2) Connect the signal generator to the ANTENNA connector.
Signal generator setting
FREQUENCY(Carrier frequency)
CE62 model : 806.125 MHz
CE69 model : 858.125 MHz
AU66 model : 799.250 MHz
RF OUTPUT (Output level) : 60 dBμV_{EMF} (= −53 dBm)
MODULATION (Modulation frequency) : 1 kHz
DEVIATION (Frequency deviation) : ±5 kHz

(3) Adjustment
Specification : OUTPUT connector output level (level meter indication level) = −58.0 dBm ±0.5 dB (at 600 Ω loaded)
Adjustment : ⊘ RV301/RF-93 board (A side)

3-2-3. Muting level and RF level adjustment

Perform this adjustment when the Muting levels deviate from the specification.
This adjustment is performed automatically by the learning function of the WRR-805A RSSI learning.

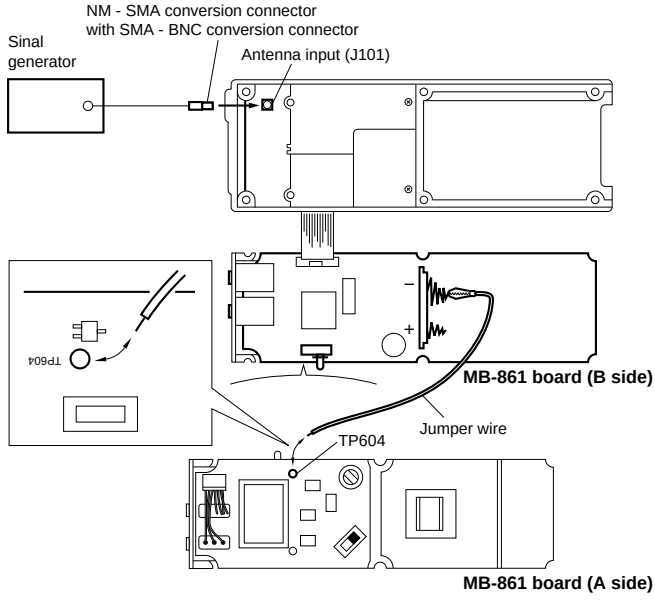
Equipment and Tools

DC power supply: +3.00 Vdc ±0.02 V
Signal generator
MM-SMA conversion connector (Part No. J-6402-480-A)
SMA-BNC conversion connector (Part No.J-6402-490-A)

Procedure

(1) Connect the signal generator to the ANTENNA connector.
(2) Turn OFF the WRR-805A POWER switch (S501).
(3) Set the signal generator as follows :
Signal generator setting
FREQUENCY (Carrier frequency)
CE62 model; 802.000 MHz
CE69 model; 855.000 MHz
AU66 model; 795.000 MHz
RF OUTPUT (Output level) : 15 dBμ V_{EMF} (= −98 dBm)
MODULATION (Modulation frequency) :
OFF (No modulation)

(4) Short-circuit between TP604 (land) on the MB-861 board and GND (battery "−" terminal) with a jumper wire as shown figure below.



(5) Turn ON the WRR-805A POWER switch (S501).
(6) Release (open) the jumper wire from the TP604 (land) on the MB-861 board (A side), and check that the following indication on the LCD appears as follows :
LCD display : “C 1 x x”
x x : About 3D to 58 (Hexadecimal)
(7) Change the FREQUENCY of the signal generator as follows :
FREQUENCY (carrier frequency)
CE62 model : 806.000 MHz
CE69 model : 858.000 MHz
AU66 model : 799.000 MHz
(8) Short-circuit between TP604 (land) on the MB-861 board and GND (battery “−” terminal)with a jumper wire.
(9) Release (open) the jumper wire from the TP604 (land) on the MB-861 board (A side) , and check that the following indication on the LCD appears as follows :
LCD display : “C 2 x x”
x x : FAbout 3D to 58 (Hexadecimal)
(10) Change the FREQUENCY of the signal generator as follows :
FREQUENCY (carrier frequency)
CE62 model : 811.000 MHz
CE69 model : 861.000 MHz
AU66 model : 804.000 MHz
(11) Short-circuit between TP604 (land) on the MB-861 board and GND (battery “−” terminal)with the jumper wire.
(12) Release (open) the jumper wire from the TP604 (land) on the MB-861 board (A side) , and check that the following indication on LCD appears as follows:
LCD display : “C 3 x x”
x x : About 3D to 58 (Hexadecimal)
(13) Short-circuit between TP604 (land) on the MB-861 board and GND (battery “−” terminal) with the jumper wire.
The WRR-805A Power is automatically turned OFF and then ON.

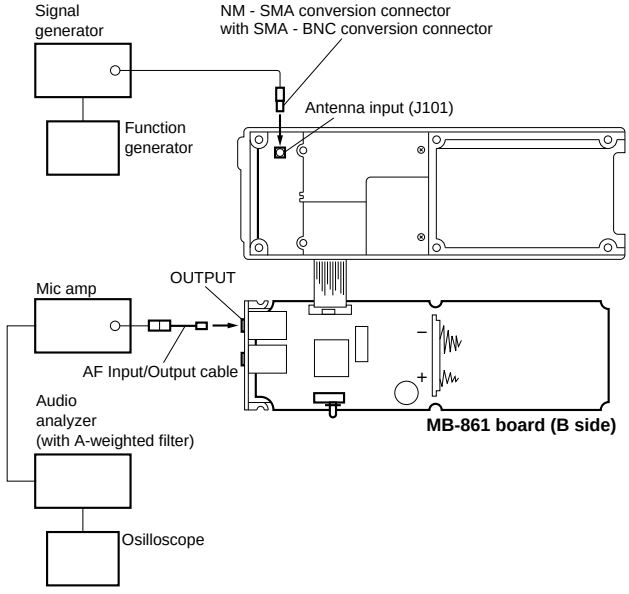
3-2-4. S/N Checking

Equipment and Tools Required

DC power supply : +3.00 Vdc ±0.02 V
Signal generator

Function generator
Audio analyzer with A-weighted filter
Mic amp (Noise mete)
Oscilloscope
MM-SMA conversion connector (Part No. J-6402-480-A)
SMA-BNC conversion connector (Part No. J-6402-490-A)
AF Input/Output cable (Sony K-1334 or equivalent)

Connection



Switch and Control Setting

MONITOR control (RV361) : Minimum position
MUTING switch (S605) : OFF
Channel setting : Setting of the channel is to be perform with the MODE switch (S601) , SET switch (S604) , "+" switch (S602) and "−" switch (S603).
CE62 model :
Group 00, 6301 channel (806.125 MHz)
CE69 model :
Group 00, 6933 channel (858.125 MHz)
AU66 model :
Group 00, 6701 channel (799.250 MHz)

Procedure

(1) Connect the audio analyzer to the OUTPUT connector via MIC amp.
(2) Connect the signal generator to the ANTENNA connector.
(3) Set the signal generator as follows :
FREQUENCY(Carrier frequency)
CE62 model : 806.125 MHz
CE69 model : 858.125 MHz
AU66 model : 799.250 MHz
RF OUTPUT (Output level) : 60 dBμV_{EMF} (= −53 dBm)
MODULATION (Modulation frequency) : 1 kHz
DEVIATION (Frequency deviation) : ±5 kHz
(4) Read the output level of the OUTPUT connector (Audio analyzer indication level).
This level is specified to be 0 dB.
(5) Turn OFF the MODULATION of the signal generator (No modulation).
(6) Check that output level of the OUTPUT is −61 dB or less (S/N is 61 dB or more with A-weighted filter) as compared with the level of procedure (4) above.
(7) Change the RF OUTPUT (output level) of the signal generator as shown below.
RF OUTPUT (output level) : 10 dBμV_{EMF} (= −103 dBm)
(8) Check that output level of the TUNER OUTPUT is −38 dB or less (S/N is 38 dB or more with A-weighted filter) as compared with the level of procedure (4) above.
(9) Change the RF OUTPUT (output level) of the signal generator as shown below.
RF OUTPUT (output level) : 60 dBμV_{EMF} (= −53 dBm)
(10) Set the audio analyzer to the distortion mode.
(11) Turn ON the MODULATION of the signal generator.
(12) Check that distortion ratio is 0.9 % or less (−41 dB or less) with A-weighted filter.
(13) Set the channel and FREQUENCY (carrier frequency) of the signal generator as shown ① and ② below.
Perform the procedures (1) to (12) above, for each channel setting (① and ②).

① Channel setting :
CE62 model : Group 00, 6217 channel (800.125 MHz)
CE69 model : Group 00, 6901 channel (854.125 MHz)
AU66 model : Group 00, 6601 channel (792.250 MHz)
Signal generator setting:
FREQUENCY(Carrier frequency)
CE62 model : 800.125 MHz
CE69 model : 854.125 MHz
AU66 model : 792.250 MHz

② Channel setting:
CE62 model : Group 00, 6363 channel (813.875 MHz)
CE69 model : Group 00, 6964 channel (862.000 MHz)
AU66 model : Group 00, 6751 channel (805.500 MHz)
Signal generator setting:
FREQUENCY(Carrier frequency)
CE62 model : 813.875 MHz
CE69 model : 862.000 MHz
AU66 model : 805.500 MHz

3-2-5. Distortion Ratio Check

Equipment and Tools Required

Same as “3-2-4. S/N Check”.

Connection

Same as “3-2-4. S/N Check”.

Switch and Control Setting

Same as “3-2-4. S/N Check”.

Procedure

(1) Connect the audio analyzer (with A-weighted filter) to the OUTPUT connector via MIC amp.

(2) Connect the signal generator to the ANTENNA connector.

(3) Set the signal generator as follows :

FREQUENCY (Carrier frequency)

CE62 model : 806.125 MHz

CE69 model : 858.125 MHz

AU66 model : 799.250 MHz

RF OUTPUT (Output level) : 60 dBμV_{EMF} (= −53 dBm)

MODULATION (Modulation frequency) : 1 kHz

DEVIATION (Frequency deviation) : ±5 kHz

(4) Set the audio analyzer (A-weighted filter : OFF) to the distortion mode, and check that the distortion ratio is less than 0.9 % (−41 dB or less).

(5) Change the MODULATION (modulation frequency) of the signal generator as shown below.

MODULATION (modulation frequency) : 10 kHz

(Note : 10 kHz modulation frequency must be set by using the function generator.)

Check that the distortion ratio is less than 8 %.

(6) Set the channel setting and FREQUENCY (carrier frequency) of the signal generator as shown ① and ② below.

Perform the procedures (1) to (5) above, for each channel setting (① and ②).

① Channel setting :

CE62 model : Group 00, 6217 channel (800.125 MHz)

CE69 model : Group 00, 6901 channel (854.125 MHz)

AU66 model : Group 00, 6601 channel (792.250 MHz)

Signal generator setting :

FREQUENCY(Carrier frequency)

CE62 model : 800.125 MHz

CE69 model : 854.125 MHz

AU66 model : 792.250 MHz

② Channel setting :

CE62 model : Group 00, 6363 channel (813.875 MHz)

CE69 model : Group 00, 6964 channel (862.000 MHz)

AU66 model : Group 00, 6751 channel (805.500 MHz)

Signal generator setting:

FREQUENCY(Carrier frequency)

CE62 model : 813.875 MHz

CE69 model : 862.000 MHz

AU66 model : 805.500 MHz

3-2-6. RF Level Indicator Check

Equipment and Tools Required

Same as “3-2-4. S/N Check”.

Connection

Same as “3-2-4. S/N Check”.

Switch and Control Setting

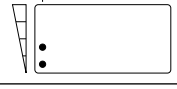
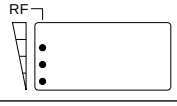
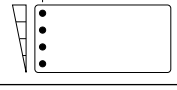
Same as “3-2-4. S/N Check”.

Procedure

(1) Connect the signal generator to the ANTENNA connector.

(2) Set the signal generator as follows:
FREQUENCY(Carrier frequency)
CE62 model : 806.125 MHz
CE69 model : 858.125 MHz
AU66 model : 792.250 MHz
RF OUTPUT (Output level) : 0 dBμV_{EMF} (= −113 dBm)
MODULATION (Modulation frequency) :
OFF (No modulation)

(3) Increase gradually the output level from the signal generator, and check that the output level of the signal generator is as follows when the RF input level indicator lights.

RF level indicator lights in	Signal generator output level
LCD : RF	15 dBμV_{EFM} ±4 dB
LCD : RF 	25 dBμV_{EFM} ±4 dB
LCD : RF 	35 dBμV_{EFM} ±4 dB
LCD : RF 	45 dBμV_{EFM} ±4 dB

(4) Set the channel setting and FREQUENCY (carrier frequency) of the signal generator as shown ① and ② below.
Perform the procedures (1) through (3) above, for each channel setting (① and ②).

① Channel setting :
CE62 model : Group 00, 6217 channel (800.125 MHz)
CE69 model : Group 00, 6901 channel (854.125 MHz)
AU66 model : Group 00, 6601 channel (792.250 MHz)
Signal generator setting :
FREQUENCY(Carrier frequency)
CE62 model : 800.125 MHz
CE69 model : 854.125 MHz
AU66 model : 792.250 MHz

② Channel setting
CE62 model : Group 00, 6363 channel (813.875 MHz)
CE69 model : Group 00, 6964 channel (862.000 MHz)
AU66 model : Group 00, 6751 channel (805.500 MHz)
Signal generator setting :
FREQUENCY(Carrier frequency)
CE62 model : 813.875 MHz
CE69 model : 862.000 MHz
AU66 model : 805.500 MHz

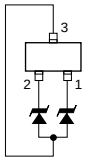
SECTION 4
SEMICONDUCTOR PIN ASSIGNMENTS

Semiconductors of which functions are equivalent are described here. For parts replacement, refer to the section of Spare Parts in this manual. The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

ここに記載されている半導体は，それぞれの機能を等価的に表したものです。　なお，互換性のない型名を併記していることがありますので，部品を交換するときは，Spare Partsの章を参照してください。
等価回路はICメーカーのデータブックに従いました。

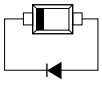
DIODE

—TOP VIEW—



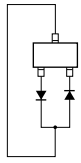
01ZA8.2(TPL3)

—TOP VIEW—



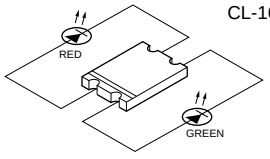
1SS400TE61

—TOP VIEW—



MA133
MA133-TX

LED



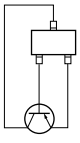
CL-165HR/YG-D-T

—TOP VIEW—

SML-310LTT86

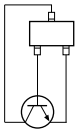
TRANSISTOR

—TOP VIEW—

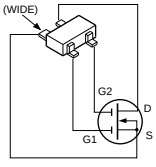


2SA1965-TL
2SB815B7-TB

—TOP VIEW—

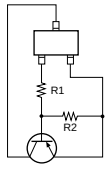


2SC4738-YGR-TE85L
2SC4915-O-TE85L
2SC4919
2SC4919-TL
2SC5374-TL
2SD2216-Q
FMMT617TA



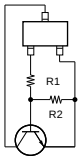
3SK254-T2

—TOP VIEW—



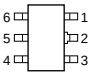
DTA114EE
(R1=10k,R2=10k)
DTA114EE-TL

—TOP VIEW—

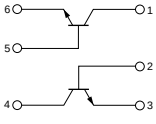


DTC114EE
(R1=10k,R2=10k)
DTC114EE-TL

—TOP VIEW—

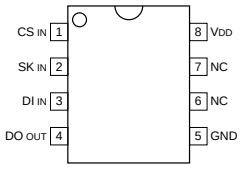


XN4504
XN4504-TX



AK93C45AV-L (ASAHI)

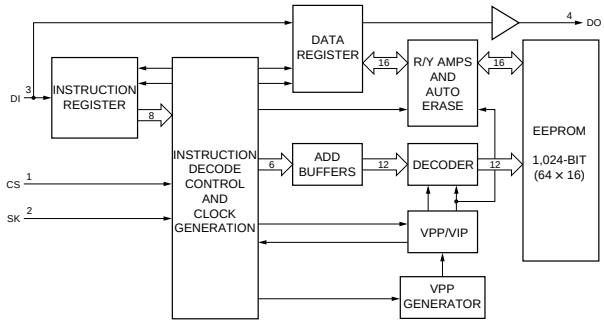
1,024 (64 × 16)-BIT EEPROM
—TOP VIEW—



INPUTS
CS : CHIP SELECT
DI : SERIAL DATA
SK : SERIAL CLOCK

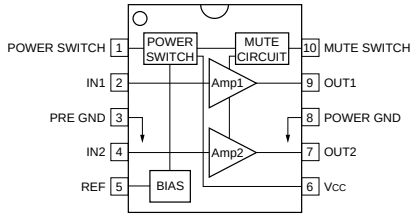
OUTPUT
DO : SERIAL DATA

OTHER
NC : NO CONNECTION



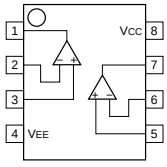
LA4533M (SANYO)
LA4533MTP-1

2-CH MINI POWER AMPLIFIER
—TOP VIEW—



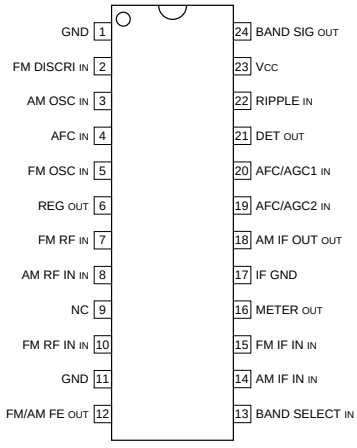
NJM2100V-TE2 (JRC)

DUAL OPERATIONAL AMPLIFIERS
(DUAL-SUPPLY TYPE)
—TOP VIEW—



CXA1611N-T4 (SONY)

FM/AM RADIO
—TOP VIEW—



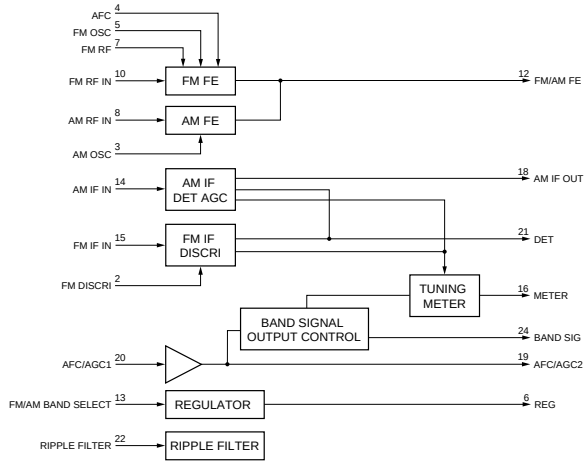
INPUTS

AFC	: AUTOMATIC FREQUENCY CONTROL
AFC/AGC1, AFC/AGC2	: AUTOMATIC GAIN AND FREQUENCY CONTROL
AM IF IN	: AM IF INPUT STAGE
AM OSC	: AM LOCAL OSCILLATOR
AM RF IN	: AM RF AMPLIFIER
BAND SELECT	: BAND SELECT FOR FM/AM
FM DISCRI	: FM DISCRIMINATOR
FM IF IN	: FM IF AMPLIFIER
FM OSC	: FM LOCAL OSCILLATOR
FM RF IN	: FM RF AMPLIFIER
RIPPLE	: RIPPLE FILTER

OUTPUTS

AM IF OUT	: AM IF
BAND SIG	: BAND SIGNAL OUTPUT WIDTH CONTROL
DET	: DETECTOR
FM/AM FE	: AM AND FM FRONT-END
METER	: METER DRIVER
REG	: REGULATOR VOLTAGE

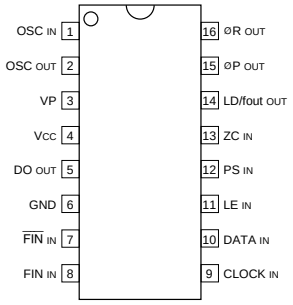
OTHER
NC : NO CONNECTION



MB15E03LPFV1-G-BND-ER (FUJITSU)

PLL FREQUENCY SYNTHESIZER

—TOP VIEW—

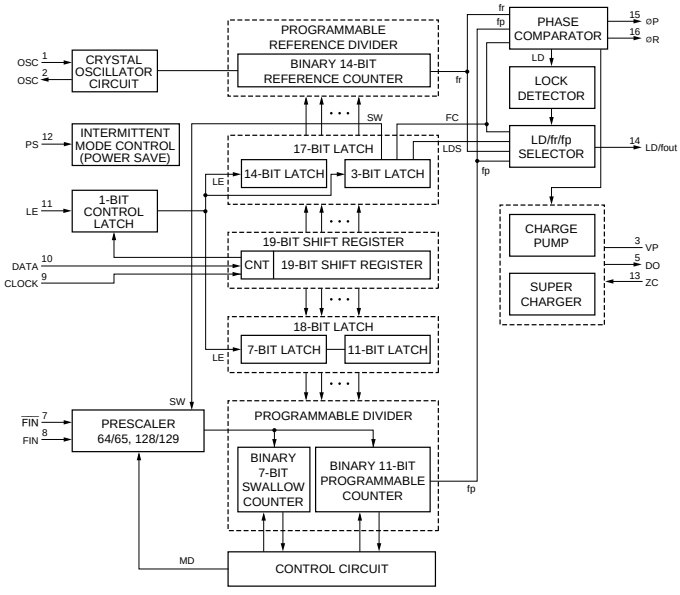


INPUTS

CLOCK : CLOCK
DATA : SERIAL DATA
FIN : PRESCALER
FIN : PRESCALER COMPLEMENTARY
LE : LOAD ENABLE
OSC : OSCILLATOR
PS : POWER SAVING MODE CONTROL
ZC : HIGH-IMPEDANCE CONTROL

OUTPUTS

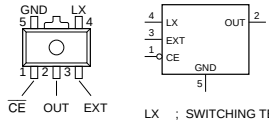
DO : CHARGE PUMP
LD : LOCK DETECT/PHASE COMPARATOR MONITORING
OSC : OSCILLATOR
ØP, ØR : PHASE COMPARATOR



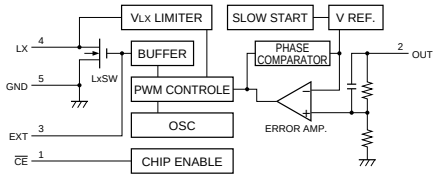
RH5RH363B-T1 (RICOH)

C-MOS PWM STEP-UP DC/DC CONVERTER

—TOP VIEW—



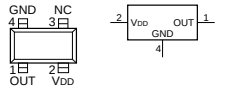
LX ; SWITCHING TERMINAL (OPEN DRAIN)
EXT ; EXTERNAL TRANSISTOR DRIVE (CMOS OUTPUT)
CE ; CHIP ENABLE
OUT ; STEP-UP OUTPUT VOLTAGE MONITOR

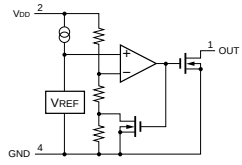


S-80827ANNP-EDQ-T2 (SEIKO)

VOLTAGE DETECTOR

—TOP VIEW—

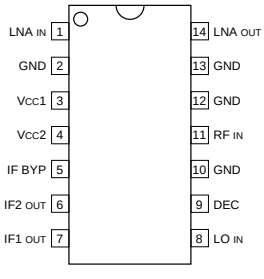


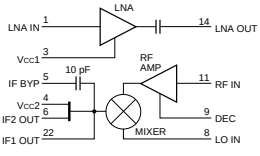


RF2418TR13 (RF MICRO)

RF AMPLIFIER/MIXER

—TOP VIEW—

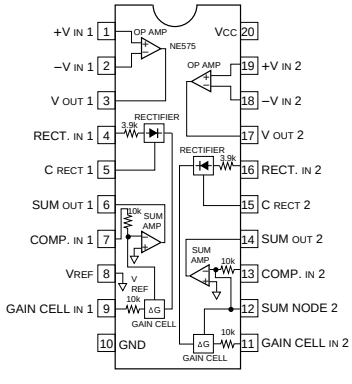




SA575DK-T (PHILIPS)

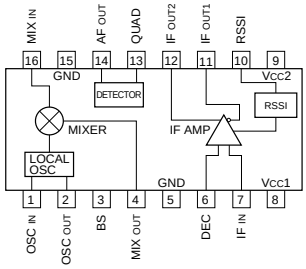
LOW VOLTAGE COMPANDOR

—TOP VIEW—



TA31161FN(EL) (TOSHIBA)

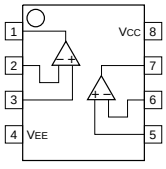
IF DETECTOR
—TOP VIEW—



OSC IN, OUT	;	LOCAL OSC INPUT
BS	;	BATTERY SAVE
MIXER OUT	;	MIXER OUTPUT
DEC	;	BIAS FOR IF INPUT
IF IN	;	IF INPUT
RSSI	;	RSSI OUTPUT
IF OUT1, 2	;	IF LIMITTER OUTPUT
QUAD	;	PHASE INPUT FOR FM DETECTOR
AF OUT	;	DEMODULATION SIGNAL OUTPUT
MIX IN	;	MIXER INPUT

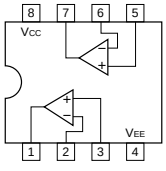
TA75W01FU (TOSHIBA)
TA75W01FU-TE12R

DUAL OPERATIONAL AMPLIFIERS
(SINGLE-SUPPLY TYPE)
—TOP VIEW—



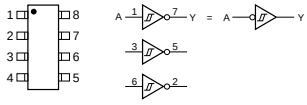
TA75W393FU (TOSHIBA)
TA75W393FU-TE12R

DUAL COMPARATORS
—TOP VIEW—



TC7W14FU(TE12R) (TOSHIBA)

C-MOS HEX INVERTERS
—TOP VIEW—



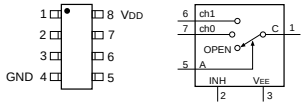
$Y = \overline{A}$

A	Y
0	1
1	0

0 : LOW LEVEL
1 : HIGH LEVEL

TC7W53FU(TE12R) (TOSHIBA)

C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
—TOP VIEW—

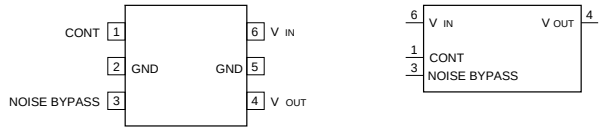


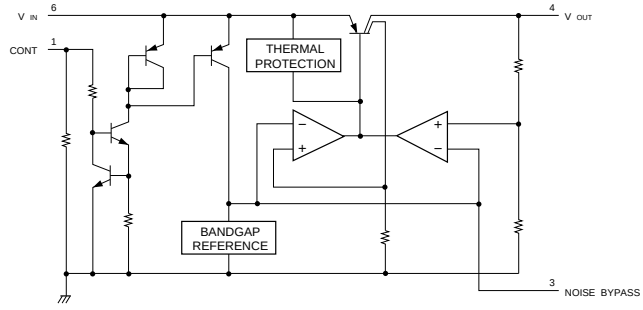
CONT. INPUT		ON
INH	A	CHANNEL
0	0	ch0
0	1	ch1
1	×	OPEN

0 : LOW LEVEL
1 : HIGH LEVEL
× : DON'T CARE

TK11230BMCL (TOKO)

REGULATOR USED FOR POWER SUPPLY
—TOP VIEW—





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SECTION 5
SPARE PARTS

5-1. NOTES ON REPAIR PARTS

(1) Safety Related Components Warning

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

(2) Standardization of Parts

Repair parts supplied from Sony Parts Center may not be always identical with the parts which actually in use due to “accommodating the improved parts and/or engineering changes” or “standardization of genuine parts”.

This manual's exploded views and electrical spare parts list are indicating the part numbers of “the standardized genuine parts at present” .

(3) Stock of Parts

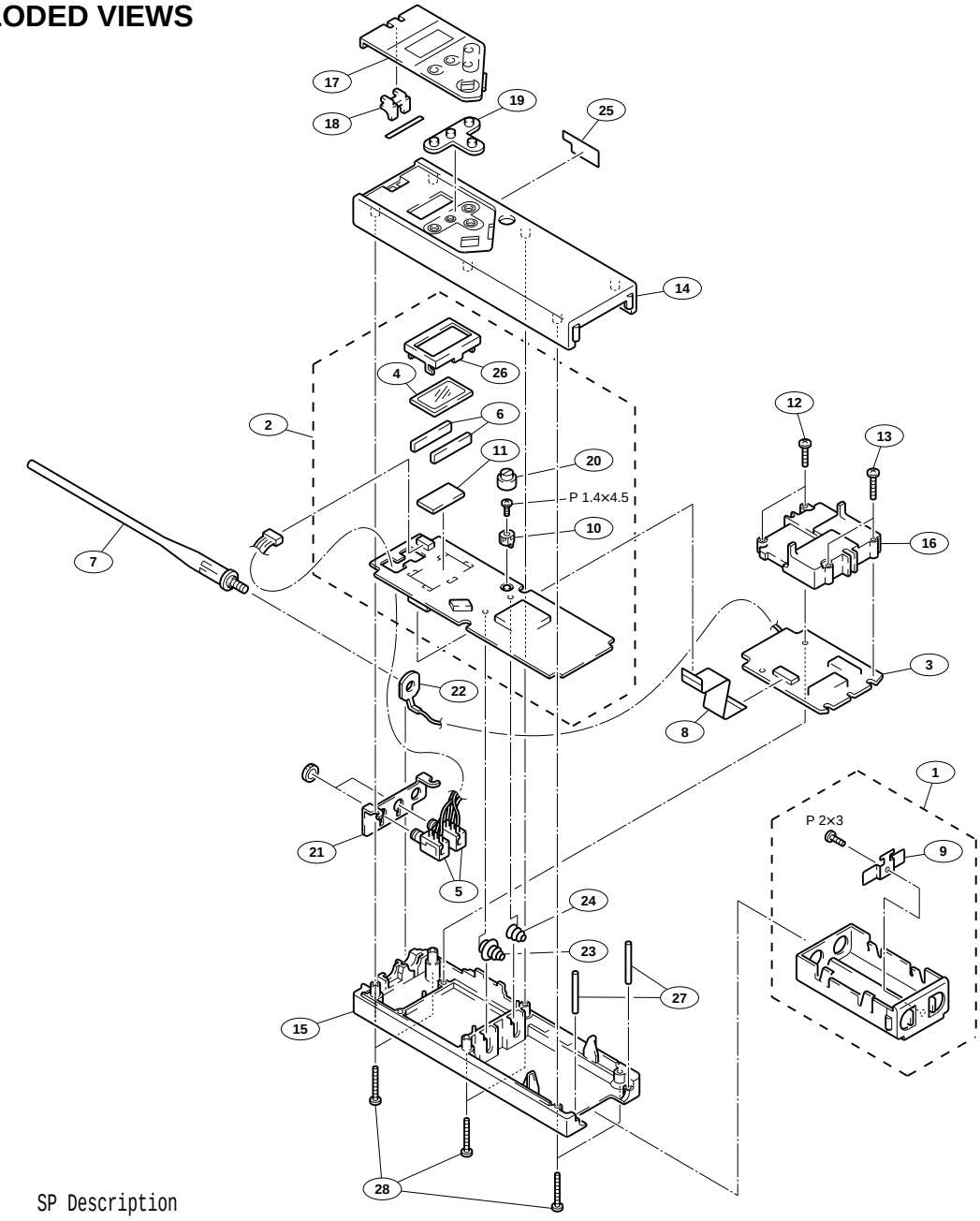
Parts marked with “o” SP (Supply Code) column of the spare parts list are not normally required for routine service work. Orders for parts marked with “o” will be processed, but allow for additional delivery time.

(4) Units for Capacitors, Inductors and Resistors

The following units are assumed in schematic diagrams, electrical parts list and exploded views unless otherwise specified.

Capacitors : μF
Inductors : μH
Resistors : Ω

5-2. EXPLODED VIEWS



No.	Part No.	SP	Description
1	A-4521-033-D	s	CASE ASSY, BATTERY
2	A-8322-388-A	o	PC BOARD BLOCK ASSY (MB)(for AU66 model)
	A-8322-396-A	o	PC BOARD BLOCK ASSY (MB)(for CE62 model)
	A-8322-403-A	o	PC BOARD BLOCK ASSY (MB)(for CE69 model)
3	A-8322-367-A	o	PC BOARD BLOCK ASSY (RF)(for AU66 model)
	A-8322-398-A	o	PC BOARD BLOCK ASSY (RF)(for CE62 model)
	A-8322-405-A	o	PC BOARD BLOCK ASSY (RF)(for CE69 model)
4	1-467-301-11	s	DISPLAY, LIQUID CRYSTAL
5	1-507-743-21	s	JACK, STEREO MINIATURE
6	1-537-802-11	o	CONDUCTIVE BOARD, CONNECTION
7	1-754-073-11	s	ANTENNA (for CE62, AU66 model)
	1-754-074-11	s	ANTENNA (for CE69 model)
8	1-790-932-11	s	WIRE, FLAT TYPE (20 CORE)
9	2-540-502-04	o	TERMINAL BOARD
10	2-540-507-01	o	SHAFT, ROTARY
11	2-545-242-01	o	PLATE, LCD
12	2-545-696-01	s	SCREW (S) (M1. 7X8)
13	2-545-697-01	s	SCREW (M) (M1. 7X10)

No.	Part No.	SP	Description
14	2-545-701-01	o	CASE (UPPER)
15	2-545-702-01	o	CASE (LOWER)
16	2-545-703-01	o	COVER, SHIELD
17	2-545-704-01	o	PANEL, UPPER
18	2-545-705-01	o	PLATE, LIGHT GUIDE
19	2-545-706-01	s	BUTTON (4 GANGS)
20	2-545-707-01	s	KNOB (ATT)
21	2-545-708-01	o	BRACKET (OUT)
22	2-545-709-01	o	BRACKET (ANT)
23	2-545-710-01	s	SPRING (400G), BATTERY
24	2-545-711-01	s	SPRING (400H), BATTERY
25	2-545-712-01	o	LABEL (MUTE)
26	3-678-343-01	s	CASE(LCD)
27	3-703-357-08	s	PIN (DIA. 1.6 SERISE)
28	3-936-998-01	s	SCREW (DIA. 1.7X12), PRECISION

5-3. ELECTRICAL PARTS LIST

MB-861 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8322-388-A	o	PC BLOCK ASSY (MB)(for AU66)
1pc	A-8322-396-A	o	PC BLOCK ASSY (MB)(for CE62)
1pc	A-8322-403-A	o	PC BLOCK ASSY (MB)(for CE69)
1pc	1-467-301-11	s	DISPLAY, LIQUID CRYSTAL
1pc	1-537-802-11	o	CONDUCTIVE BOARD, CONNECTION
C341	1-125-891-11	s	CERAMIC 0.47uF 10% 10V
C342	1-127-954-21	s	FILM 0.047uF 5% 16V
C343	1-164-874-11	s	CERAMIC 100PF 5% 16V
C344	1-135-337-11	s	TANTAL 1uF 20% 6.3
C345	1-164-874-11	s	CERAMIC 100PF 5% 16V
C346	1-135-337-11	s	TANTAL 1uF 20% 6.3
C347	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C351	1-117-919-11	s	TANTAL 10uF 20% 6.3
C352	1-164-866-11	s	CERAMIC 47PF 5% 16V
C353	1-164-866-11	s	CERAMIC 47PF 5% 16V
C354	1-164-866-11	s	CERAMIC 47PF 5% 16V
C361	1-135-337-11	s	TANTAL 1uF 20% 6.3
C362	1-119-750-11	s	TANTAL 22uF 20% 6.3
C363	1-113-682-11	s	TANTAL 33uF 20% 10V
C364	1-127-956-21	s	FILM 0.1uF 5% 16V
C365	1-127-956-21	s	FILM 0.1uF 5% 16V
C366	1-126-412-11	s	ELECT, CHIP 220uF 20% 4V
C367	1-126-412-11	s	ELECT, CHIP 220uF 20% 4V
C368	1-164-866-11	s	CERAMIC 47PF 5% 16V
C369	1-164-866-11	s	CERAMIC 47PF 5% 16V
C370	1-164-866-11	s	CERAMIC 47PF 5% 16V
C401	1-125-891-11	s	CERAMIC 0.47uF 10% 10V
C402	1-164-864-11	s	CERAMIC 39PF 5% 16V
C403	1-164-943-11	s	CERAMIC 0.01uF 10% 16V
C404	1-164-315-11	s	CERAMIC, CHIP 470PF 5% 50V
C405	1-164-315-11	s	CERAMIC, CHIP 470PF 5% 50V
C406	1-162-979-11	s	CERAMIC, CHIP 0.0027uF 10% 50V
C407	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C408	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C409	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C411	1-164-864-11	s	CERAMIC 39PF 5% 16V
C412	1-117-919-11	s	TANTAL 10uF 20% 6.3
C413	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C414	1-117-919-11	s	TANTAL 10uF 20% 6.3
C415	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C421	1-117-607-81	s	CERAMIC 24PF 5% 16V
C422	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C423	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C424	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C425	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C426	1-164-850-11	s	CERAMIC 10PF 0.5PF 16V
C427	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C428	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C429	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C431	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C501	1-164-866-11	s	CERAMIC 47PF 5% 16V
C502	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C503	1-115-581-11	s	TANTAL 100uF 20% 16V
C504	1-115-581-11	s	TANTAL 100uF 20% 16V
C505	1-115-170-11	s	TANTALUM 4.7uF 20% 10V
C506	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C507	1-164-866-11	s	CERAMIC 47PF 5% 16V
C508	1-162-977-11	s	CERAMIC 0.0018uF 10% 50V
C509	1-164-943-11	s	CERAMIC 0.01uF 10% 16V

(MB-861 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C510	1-117-372-11	s	TANTALUM 100uF 20% 10V
C511	1-115-170-11	s	TANTALUM 4.7uF 20% 10V
C512	1-113-682-11	s	TANTAL 33uF 20% 10V
C513	1-164-943-11	s	CERAMIC 0.01uF 10% 16V
C514	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C515	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C601	1-117-396-91	s	TANTAL 3.3uF 20% 10V
C602	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C603	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C604	1-117-396-91	s	TANTAL 3.3uF 20% 10V
C605	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C606	1-164-943-11	s	CERAMIC 0.01uF 10% 16V
C608	1-164-866-11	s	CERAMIC 47PF 5% 16V
C610	1-164-864-11	s	CERAMIC 39PF 5% 16V
C611	1-164-864-11	s	CERAMIC 39PF 5% 16V
C612	1-164-864-11	s	CERAMIC 39PF 5% 16V
C613	1-164-864-11	s	CERAMIC 39PF 5% 16V
C614	1-164-864-11	s	CERAMIC 39PF 5% 16V
C615	1-164-864-11	s	CERAMIC 39PF 5% 16V
C617	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C618	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C619	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C620	1-164-864-11	s	CERAMIC 39PF 5% 16V
C621	1-164-864-11	s	CERAMIC 39PF 5% 16V
C622	1-164-864-11	s	CERAMIC 39PF 5% 16V
C623	1-164-850-11	s	CERAMIC 10PF 0.5PF 16V
C624	1-164-862-11	s	CERAMIC 33PF 5% 16V
C625	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C626	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C631	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C641	1-164-937-11	s	CERAMIC 0.001uF 10% 16V
C642	1-164-937-11	s	CERAMIC 0.001uF 10% 16V
C643	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C651	1-117-396-91	s	TANTAL 3.3uF 20% 10V
C661	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C662	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C663	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C664	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C665	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
CN1	1-778-648-11	o	CONNECTOR, FFC (ZIF) 20P
CN2	1-770-623-21	s	PIN, CONNECTOR 6P
CN601	1-770-623-21	s	PIN, CONNECTOR 6P
CT601	1-141-482-21	s	CAP, ADJ 10PF
D301	8-719-069-28	s	DIODE 1SS400TE61
D401	8-719-421-69	s	DIODE MA133
D402	8-719-421-69	s	DIODE MA133
D403	8-719-421-69	s	DIODE MA133
D404	8-719-421-69	s	DIODE MA133
D501	8-719-062-16	s	DIODE 01ZA8.2(TPL3)
D502	8-719-069-28	s	DIODE 1SS400TE61
D503	8-719-062-16	s	DIODE 01ZA8.2(TPL3)
D601	8-719-064-07	s	DIODE SML-310LTT86
D603	8-719-062-16	s	DIODE 01ZA8.2(TPL3)
D604	8-719-062-16	s	DIODE 01ZA8.2(TPL3)
D605	8-719-069-28	s	DIODE 1SS400TE61
FB301	1-414-227-11	s	INDUCTOR CHIP 0UH
FB302	1-414-227-11	s	INDUCTOR CHIP 0UH

(MB-861 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
FB303	1-414-227-11	s	INDUCTOR CHIP 0UH
FB361	1-414-227-11	s	INDUCTOR CHIP 0UH
FB362	1-414-227-11	s	INDUCTOR CHIP 0UH
FB363	1-414-227-11	s	INDUCTOR CHIP 0UH
FL501	1-233-893-21	s	FILTER, CHIP EMI
FL502	1-233-893-21	s	FILTER, CHIP EMI
FL601	1-233-893-21	s	FILTER, CHIP EMI
IC304	8-759-370-11	s	IC NJM2100V-TE2
IC305	8-759-802-75	s	IC LA4533MTP-1
IC401	8-759-370-11	s	IC NJM2100V-TE2
IC402	8-759-080-34	s	IC TA75W01FU-TE12R
IC403	8-759-370-11	s	IC NJM2100V-TE2
IC404	8-759-066-55	s	IC TA75W393FU-TE12R
IC501	8-759-368-42	s	IC RH5RH363B-T1
IC601	8-759-451-52	s	IC TK11230BMCL
IC602	8-759-590-61	s	IC UPD75P3036GK-R805-V1.0
IC603	8-759-277-63	s	IC TC7W14FU(TE12R)
IC604	8-759-457-68	s	IC AK93C45AV-L
IC605	8-759-466-70	s	IC S-80827ANNP-EDQ-T2
L501	1-412-029-11	s	INDUCTOR CHIP 10UH
Q301	8-729-031-69	s	TRANSISTOR 2SA1965-TL
Q302	8-729-015-66	s	TRANSISTOR 2SC4919
Q303	8-729-928-36	s	TRANSISTOR DTA114EE-TL
Q304	8-729-928-36	s	TRANSISTOR DTA114EE-TL
Q501	8-729-041-51	s	TRANSISTOR FMMT617TA
Q502	8-729-425-18	s	TRANSISTOR XN4504
Q504	8-729-928-90	s	TRANSISTOR DTC114EE
Q505	8-729-800-71	s	TRANSISTOR 2SB815B7-TB
Q506	8-729-928-90	s	TRANSISTOR DTC114EE
Q601	8-729-425-64	s	TRANSISTOR 2SD2216-Q
R331	1-218-974-11	s	RESCHIP 56K 0.50% 1/16W
R332	1-208-927-11	s	RESCHIP 47K 0.50% 1/16W
R333	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R334	1-208-701-11	s	RESCHIP 5.6K 0.50% 1/16W
R335	1-218-849-11	s	RESCHIP 3.3K 0.50% 1/16W
R336	1-208-711-11	s	RESCHIP 15K 0.50% 1/16W
R337	1-208-709-11	s	RESCHIP 12K 0.50% 1/16W
R338	1-208-707-11	s	RESCHIP 10K 0.50% 1/16W
R339	1-208-707-11	s	RESCHIP 10K 0.50% 1/16W
R341	1-208-675-11	s	RESCHIP 470 0.50% 1/16W
R342	1-208-691-11	s	RESCHIP 2.2K 0.50% 1/16W
R343	1-208-671-11	s	RESCHIP 330 0.50% 1/16W
R344	1-218-939-11	s	RESCHIP 68 0.50% 1/16W
R345	1-218-939-11	s	RESCHIP 68 0.50% 1/16W
R346	1-208-671-11	s	RESCHIP 330 0.50% 1/16W
R347	1-208-927-11	s	RESCHIP 47K 0.50% 1/16W
R348	1-208-707-11	s	RESCHIP 10K 0.50% 1/16W
R361	1-220-803-81	s	RESCHIP 4.7 5% 1/16W
R362	1-220-803-81	s	RESCHIP 4.7 5% 1/16W
R363	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R364	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R365	1-218-990-11	s	SHORT 0
R366	1-218-990-11	s	SHORT 0
R401	1-218-974-11	s	RESCHIP 56K 0.50% 1/16W
R402	1-208-927-11	s	RESCHIP 47K 0.50% 1/16W
R403	1-208-707-11	s	RESCHIP 10K 0.50% 1/16W
R404	1-208-687-11	s	RESCHIP 1.5K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R405	1-208-697-11	s	RESCHIP 3.9K 0.50% 1/16W
R406	1-208-697-11	s	RESCHIP 3.9K 0.50% 1/16W
R407	1-208-707-11	s	RESCHIP 10K 0.50% 1/16W
R408	1-208-707-11	s	RESCHIP 10K 0.50% 1/16W
R409	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R410	1-208-691-11	s	RESCHIP 2.2K 0.50% 1/16W
R411	1-208-953-11	s	RESCHIP 560K 0.50% 1/16W
R412	1-208-707-11	s	RESCHIP 10K 0.50% 1/16W
R421	1-208-927-11	s	RESCHIP 47K 0.50% 1/16W
R422	1-208-715-11	s	RESCHIP 22K 0.50% 1/16W
R423	1-208-953-11	s	RESCHIP 560K 0.50% 1/16W
R424	1-208-931-11	s	RESCHIP 68K 0.50% 1/16W
R425	1-218-849-11	s	RESCHIP 3.3K 0.50% 1/16W
R426	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R427	1-208-691-11	s	RESCHIP 2.2K 0.50% 1/16W
R428	1-208-953-11	s	RESCHIP 560K 0.50% 1/16W
R429	1-208-707-11	s	RESCHIP 10K 0.50% 1/16W
R431	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R432	1-208-719-11	s	RESCHIP 33K 0.50% 1/16W
R433	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R434	1-208-719-11	s	RESCHIP 33K 0.50% 1/16W
R435	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R436	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R437	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R438	1-208-691-11	s	RESCHIP 2.2K 0.50% 1/16W
R439	1-208-953-11	s	RESCHIP 560K 0.50% 1/16W
R440	1-208-707-11	s	RESCHIP 10K 0.50% 1/16W
R441	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R442	1-208-691-11	s	RESCHIP 2.2K 0.50% 1/16W
R443	1-208-953-11	s	RESCHIP 560K 0.50% 1/16W
R444	1-208-707-11	s	RESCHIP 10K 0.50% 1/16W
R451	1-218-974-11	s	RESCHIP 56K 0.50% 1/16W
R452	1-208-713-11	s	RESCHIP 18K 0.50% 1/16W
R453	1-208-953-11	s	RESCHIP 560K 0.50% 1/16W
R454	1-208-927-11	s	RESCHIP 47K 0.50% 1/16W
R455	1-208-713-11	s	RESCHIP 18K 0.50% 1/16W
R456	1-208-953-11	s	RESCHIP 560K 0.50% 1/16W
R501	1-208-635-11	s	RESCHIP 10 0.50% 1/16W
R502	1-218-849-11	s	RESCHIP 3.3K 0.50% 1/16W
R503	1-208-885-11	s	RESCHIP 820 0.50% 1/16W
R504	1-208-707-11	s	RESCHIP 10K 0.50% 1/16W
R505	1-208-943-11	s	RESCHIP 220K 0.50% 1/16W
R506	1-208-707-11	s	RESCHIP 10K 0.50% 1/16W
R507	1-208-927-11	s	RESCHIP 47K 0.50% 1/16W
R510	1-208-927-11	s	RESCHIP 47K 0.50% 1/16W
R511	1-218-849-11	s	RESCHIP 3.3K 0.50% 1/16W
R512	1-208-707-11	s	RESCHIP 10K 0.50% 1/16W
R513	1-208-691-11	s	RESCHIP 2.2K 0.50% 1/16W
R514	1-208-703-11	s	RESCHIP 6.8K 0.50% 1/16W
R601	1-208-675-11	s	RESCHIP 470 0.50% 1/16W
R602	1-218-978-11	s	RESCHIP 120K 0.50% 1/16W
R603	1-218-941-11	s	RESCHIP 100 0.50% 1/16W
R604	1-208-679-11	s	RESCHIP 680 0.50% 1/16W
R605	1-218-933-11	s	RESCHIP 22 0.50% 1/16W
R611	1-208-927-11	s	RESCHIP 47K 0.50% 1/16W
R612	1-208-927-11	s	RESCHIP 47K 0.50% 1/16W
R613	1-208-927-11	s	RESCHIP 47K 0.50% 1/16W
R614	1-208-675-11	s	RESCHIP 470 0.50% 1/16W
R615	1-208-675-11	s	RESCHIP 470 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R616	1-208-663-11	s	RESCHIP 150 0.50% 1/16W
R617	1-208-635-11	s	RESCHIP 10 0.50% 1/16W
R618	1-208-699-11	s	RESCHIP 4.7K 0.50% 1/16W(for CE62)
	1-208-701-11	s	RESCHIP 9.1K 0.50% 1/16W(for CE69)
	1-208-910-11	s	RESCHIP 9.1K 0.50% 1/16W(for AU66)
R619	1-208-701-11	s	RESCHIP 9.1K 0.50% 1/16W(for CE62)
	1-208-909-11	s	RESCHIP 8.2K 0.50% 1/16W(for CE69)
	1-218-849-11	s	RESCHIP 3.3K 0.50% 1/16W(for AU66)
R620	1-208-927-11	s	RESCHIP 47K 0.50% 1/16W
R622	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R623	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R624	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R625	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R626	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R631	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R632	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R633	1-208-707-11	s	RESCHIP 10K 0.50% 1/16W
R634	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R641	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R642	1-208-927-11	s	RESCHIP 47K 0.50% 1/16W
R651	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R652	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R653	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R654	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R655	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R656	1-208-927-11	s	RESCHIP 47K 0.50% 1/16W
RV361	1-238-286-11	s	RES, VAR, CARBON 20K
S501	1-771-723-11	s	SWITCH, SLIDE
S601	1-771-721-21	s	SWITCH, TACTILE
S602	1-771-721-21	s	SWITCH, TACTILE
S603	1-771-721-21	s	SWITCH, TACTILE
S604	1-771-721-21	s	SWITCH, TACTILE
S605	1-771-722-11	s	SWITCH, SLIDE
T301	1-433-898-21	s	TRANSFORMER, OUTPUT
T501	1-433-937-21	s	TRANSFORMER, D.C-D.C CONVERTER
X401	1-760-458-21	s	VIBRATOR, CRYSTAL
X402	1-760-458-21	s	VIBRATOR, CRYSTAL
X403	1-767-314-11	s	CRYSTAL 32.782MHz
X601	1-760-514-11	s	VIBRATOR, CRYSTAL (SMD)

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Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8322-367-A	o	PC BOARD BLOCK ASSY (RF) (for AU68)
1pc	A-8322-398-A	o	PC BOARD BLOCK ASSY (RF) (for CE62)
1pc	A-8322-405-A	o	PC BOARD BLOCK ASSY (RF) (for CE69)
1pc	1-790-932-11	s	WIRE, FLAT TYPE (20 CORE)
C1	1-164-862-11	s	CERAMIC 33PF 5% 16V
C2	1-164-862-11	s	CERAMIC 33PF 5% 16V
C3	1-164-862-11	s	CERAMIC 33PF 5% 16V
C101	1-164-866-11	s	CERAMIC 47PF 5% 16V
C102	1-164-866-11	s	CERAMIC 47PF 5% 16V
C103	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C104	1-164-864-11	s	CERAMIC 39PF 5% 16V
C105	1-164-943-11	s	CERAMIC 0.01uF 10% 16V
C106	1-164-937-11	s	CERAMIC 0.001uF 10% 16V
C107	1-164-937-11	s	CERAMIC 0.001uF 10% 16V
C110	1-117-736-81	s	CERAMIC 2.2PF 0 16V
C111	1-164-937-11	s	CERAMIC 0.001uF 10% 16V
C121	1-164-858-11	s	CERAMIC 22PF 5% 16V
C122	1-117-745-81	s	CERAMIC 7PF 0 16V
C123	1-164-937-11	s	CERAMIC 0.001uF 10% 16V
C124	1-164-937-11	s	CERAMIC 0.001uF 10% 16V
C125	1-164-937-11	s	CERAMIC 0.001uF 10% 16V
C126	1-164-937-11	s	CERAMIC 0.001uF 10% 16V
C127	1-164-943-11	s	CERAMIC 0.01uF 10% 16V
C128	1-164-943-11	s	CERAMIC 0.01uF 10% 16V
C130	1-164-413-91	s	CERAMIC 120PF 5% 50V
C131	1-119-923-81	s	CERAMIC 0.047uF 10% 10V
C132	1-119-923-81	s	CERAMIC 0.047uF 10% 10V
C141	1-119-923-81	s	CERAMIC 0.047uF 10% 10V
C142	1-119-923-81	s	CERAMIC 0.047uF 10% 10V
C143	1-119-923-81	s	CERAMIC 0.047uF 10% 10V
C144	1-119-923-81	s	CERAMIC 0.047uF 10% 10V
C145	1-119-923-81	s	CERAMIC 0.047uF 10% 10V
C146	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C147	1-119-923-81	s	CERAMIC 0.047uF 10% 10V
C148	1-164-937-11	s	CERAMIC 0.001uF 10% 16V
C151	1-164-943-11	s	CERAMIC 0.01uF 10% 16V
C152	1-117-919-11	s	TANTAL 10uF 20% 6.3
C153	1-164-943-11	s	CERAMIC 0.01uF 10% 16V
C154	1-164-943-11	s	CERAMIC 0.01uF 10% 16V
C155	1-125-926-91	s	TANTAL 4.7uF 20% 6.3
C156	1-135-337-11	s	TANTAL 1uF 20% 6.3
C157	1-117-919-11	s	TANTAL 10uF 20% 6.3
C158	1-119-923-81	s	CERAMIC 0.047uF 10% 10V
C159	1-113-682-11	s	TANTAL 33uF 20% 10V
C160	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C201	1-127-954-21	s	FILM 0.047uF 5% 16V
C202	1-109-847-11	s	TANTAL 0.47uF 10% 16V
C203	1-127-950-21	s	FILM 0.01uF 5% 16V
C204	1-164-862-11	s	CERAMIC 33PF 5% 16V
C205	1-117-919-11	s	TANTAL 10uF 20% 6.3
C206	1-164-862-11	s	CERAMIC 33PF 5% 16V
C207	1-117-919-11	s	TANTAL 10uF 20% 6.3
C208	1-164-862-11	s	CERAMIC 33PF 5% 16V
C209	1-164-862-11	s	CERAMIC 33PF 5% 16V
C210	1-117-739-81	s	CERAMIC 3PF 0 16V
C211	1-117-735-81	s	CERAMIC 2PF 0 16V
C212	1-164-862-11	s	CERAMIC 33PF 5% 16V
C213	1-117-743-81	s	CERAMIC 5PF 0 16V
C214	1-164-862-11	s	CERAMIC 33PF 5% 16V

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Ref. No. or Q'ty	Part No.	SP	Description
C215	1-164-862-11	s	CERAMIC 33PF 5% 16V
C216	1-117-739-81	s	CERAMIC 3PF 0 16V
C217	1-164-862-11	s	CERAMIC 33PF 5% 16V
C218	1-164-882-11	s	CERAMIC 220PF 5% 16V
C221	1-117-396-91	s	TANTAL 3.3uF 20% 10V
C222	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C223	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C224	1-117-396-91	s	TANTAL 3.3uF 20% 10V
C225	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C231	1-164-937-11	s	CERAMIC 0.001uF 10% 16V
C232	1-164-862-11	s	CERAMIC 33PF 5% 16V
C233	1-125-891-11	s	CERAMIC 0.47uF 10% 10V
C234	1-164-862-11	s	CERAMIC 33PF 5% 16V
C235	1-164-937-11	s	CERAMIC 0.001uF 10% 16V
C236	1-164-862-11	s	CERAMIC 33PF 5% 16V
C237	1-164-862-11	s	CERAMIC 33PF 5% 16V
C238	1-164-862-11	s	CERAMIC 33PF 5% 16V
C239	1-164-862-11	s	CERAMIC 33PF 5% 16V
C240	1-164-862-11	s	CERAMIC 33PF 5% 16V
C251	1-164-937-11	s	CERAMIC 0.001uF 10% 16V
C252	1-164-937-11	s	CERAMIC 0.001uF 10% 16V
C301	1-125-891-11	s	CERAMIC 0.47uF 10% 10V
C302	1-117-919-11	s	TANTAL 10uF 20% 6.3
C303	1-164-866-11	s	CERAMIC 47PF 5% 16V
C304	1-117-919-11	s	TANTAL 10uF 20% 6.3
C305	1-127-951-21	s	FILM 0.015uF 5% 16V
C306	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C311	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C321	1-127-954-21	s	FILM 0.047uF 5% 16V
C322	1-125-926-91	s	TANTAL 4.7uF 20% 6.3
C323	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C324	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
C325	1-127-569-91	s	TANTAL 100uF 20% 4V
C326	1-125-926-91	s	TANTAL 4.7uF 20% 6.3
C327	1-125-926-91	s	TANTAL 4.7uF 20% 6.3
C328	1-104-544-11	s	FILM 0.0027uF 5% 50V
C329	1-127-965-21	s	FILM 0.001uF 5% 50V
C330	1-125-777-11	s	CERAMIC 0.1uF 10% 10V
CF101	1-760-287-11	s	FILTER, CERAMIC
CF102	1-760-287-11	s	FILTER, CERAMIC
CF103	1-760-287-11	s	FILTER, CERAMIC
CF104	1-781-482-21	s	DISCRIMINATOR, CERAMIC
CN3	1-774-260-11	o	CONNECTOR, FFC (ZIF) 20P
CP201	1-781-479-21	s	OSCILLATOR (VOLTAGE VAR)(for AU66)
	1-781-480-21	s	OSCILLATOR (VOLTAGE VAR)(for CE62)
	1-781-481-21	s	OSCILLATOR (VOLTAGE VAR)(for CE69)
CP202	1-760-815-11	s	OSCILLATOR, CRYSTAL
FB201	1-414-921-11	s	INDUCTOR CHIP 0UH
FL101	1-233-951-21	s	FILTER, BAND PASS(for AU66)
	1-233-952-21	s	FILTER, BAND PASS(for CE69)
	1-234-093-21	s	FILTER, BAND PASS(for CE62)
FL102	1-233-951-21	s	FILTER, BAND PASS(for AU66)
	1-233-952-21	s	FILTER, BAND PASS(for CE69)
	1-234-093-21	s	FILTER, BAND PASS(for CE62)
IC101	8-759-572-44	s	IC RF2418TR13
IC102	8-759-355-20	s	IC TA31161FN(EL)

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Ref. No. or Q'ty	Part No.	SP	Description
IC103	8-752-066-93	s	IC CXA1611N-T4
IC201	8-759-451-52	s	IC TK11230BMCL
IC202	8-759-571-36	s	IC MB15E03LPFV1-G-BND-ER
IC301	8-759-370-11	s	IC NJM2100V-TE2
IC302	8-759-564-49	s	IC TC7W53FU(TE12R)
IC303	8-759-539-60	s	IC SA575DK-T
J101	1-774-915-11	s	CONNECTOR, COAXIAL
L101	1-414-845-21	s	INDUCTOR 27NH
L102	1-414-841-21	s	INDUCTOR 12NH
L104	1-414-840-21	s	INDUCTOR 10NH
L105	1-414-843-21	s	INDUCTOR 18NH
L111	1-414-845-21	s	INDUCTOR 27NH
L112	1-414-693-11	s	INDUCTOR 150NH
L113	1-414-851-21	s	INDUCTOR 47NH
L114	1-414-917-41	s	INDUCTOR 120NH
L115	1-412-947-11	s	INDUCTOR 4.7UH
L121	1-412-959-11	s	INDUCTOR 47UH
L122	1-412-959-11	s	INDUCTOR 47UH
L201	1-414-838-21	s	INDUCTOR 6.8NH
L202	1-414-838-21	s	INDUCTOR 6.8NH
L203	1-414-834-21	o	INDUCTOR 3.3NH
L204	1-414-842-21	s	INDUCTOR 15NH
L205	1-469-188-21	s	INDUCTOR 82NH
L206	1-469-188-21	s	INDUCTOR 82NH
Q101	8-729-047-25	s	TRANSISTOR 3SK254-T2
Q102	8-729-047-25	s	TRANSISTOR 3SK254-T2
Q103	8-729-016-34	s	TRANSISTOR 2SC4915-O-TE85L
Q201	8-729-425-64	s	TRANSISTOR 2SD2216-Q
Q202	8-729-047-27	s	TRANSISTOR 2SC5374-TL
R102	1-220-179-11	s	RESCHIP 510 0.50% 1/16W
R103	1-220-179-11	s	RESCHIP 510 0.50% 1/16W
R111	1-208-931-11	s	RESCHIP 68K 0.50% 1/16W
R112	1-218-970-11	s	RESCHIP 27K 0.50% 1/16W
R113	1-208-719-11	s	RESCHIP 33K 0.50% 1/16W
R114	1-208-927-11	s	RESCHIP 47K 0.50% 1/16W
R115	1-208-719-11	s	RESCHIP 33K 0.50% 1/16W
R116	1-208-719-11	s	RESCHIP 33K 0.50% 1/16W
R117	1-208-661-11	s	RESCHIP 120 0.50% 1/16W
R118	1-218-849-11	s	RESCHIP 3.3K 0.50% 1/16W
R119	1-218-933-11	s	RESCHIP 22 0.50% 1/16W
R131	1-208-703-11	s	RESCHIP 6.8K 0.50% 1/16W
R132	1-208-671-11	s	RESCHIP 330 0.50% 1/16W
R133	1-218-849-11	s	RESCHIP 3.3K 0.50% 1/16W
R134	1-208-671-11	s	RESCHIP 330 0.50% 1/16W
R135	1-208-663-11	s	RESCHIP 150 0.50% 1/16W
R136	1-218-945-11	s	RESCHIP 220 0.50% 1/16W
R137	1-208-663-11	s	RESCHIP 150 0.50% 1/16W
R201	1-208-885-11	s	RESCHIP 820 0.50% 1/16W
R202	1-208-691-11	s	RESCHIP 2.2K 0.50% 1/16W
R203	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R211	1-218-941-11	s	RESCHIP 100 0.50% 1/16W
R212	1-208-652-11	s	RESCHIP 51 0.50% 1/16W
R213	1-218-933-11	s	RESCHIP 22 0.50% 1/16W
R221	1-208-699-11	s	RESCHIP 4.7K 0.50% 1/16W
R222	1-218-849-11	s	RESCHIP 3.3K 0.50% 1/16W
R223	1-218-933-11	s	RESCHIP 22 0.50% 1/16W
R224	1-218-941-11	s	RESCHIP 100 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R225	1-208-663-11	s	RESCHIP 150 0.50% 1/16W
R231	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R232	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R233	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R234	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R235	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R241	1-208-652-11	s	RESCHIP 51 0.50% 1/16W
R301	1-218-974-11	s	RESCHIP 56K 0.50% 1/16W
R302	1-208-927-11	s	RESCHIP 47K 0.50% 1/16W
R303	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R304	1-208-699-11	s	RESCHIP 4.7K 0.50% 1/16W
R305	1-208-699-11	s	RESCHIP 4.7K 0.50% 1/16W
R306	1-208-691-11	s	RESCHIP 2.2K 0.50% 1/16W
R307	1-208-683-11	s	RESCHIP 1K 0.50% 1/16W
R308	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R309	1-208-935-11	s	RESCHIP 100K 0.50% 1/16W
R310	1-218-958-11	s	RESCHIP 2.7K 0.50% 1/16W
R311	1-218-849-11	s	RESCHIP 3.3K 0.50% 1/16W
R312	1-208-687-11	s	RESCHIP 1.5K 0.50% 1/16W
R321	1-218-849-11	s	RESCHIP 3.3K 0.50% 1/16W
R322	1-208-701-11	s	RESCHIP 5.6K 0.50% 1/16W
R323	1-208-703-11	s	RESCHIP 6.8K 0.50% 1/16W
R324	1-218-941-11	s	RESCHIP 100 0.50% 1/16W
R325	1-208-699-11	s	RESCHIP 4.7K 0.50% 1/16W
R326	1-208-699-11	s	RESCHIP 4.7K 0.50% 1/16W
RV301	1-225-668-21	s	RES, ADJ, CERMET 4.7K
SWF101	1-760-028-11	s	FILTER, SAW
TH301	1-801-951-21	o	THERMISTOR (1005)
TH302	1-810-805-21	s	THERMISTOR, NTC (1608)

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-507-743-21	s	JACK, MINI STEREO
1pc	1-754-073-11	s	ANTENNA
1pc	1-790-935-11	s	CABLE, CONNECTION

5-4. ACCESSORIES SUPPLIED

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-790-935-11	s	CABLE, CONNECTION
1pc	2-545-716-01	s	CASE, ATTACHMENT
1pc	3-866-674-21	s	MANUAL, INSTRUCTION(for CE62,CE69)
1pc	3-866-674-31	s	MANUAL, INSTRUCTION(for AU66)

SECTION 6
BLOCK DIAGRAM

CIRCUIT DESCRIPTION

The WRR-805A is composed of the following circuit blocks.

RF-93 Board

(1) RF Block

- RF amplifier circuit
  FL101 and FL102 are the band-pass filters which select the desired frequency bandwidth for the RF input signal. The RF signal is then amplified by RF amplifier (IC101).
  The gain of the RF amplifier stage, including the loss caused by the band-pass filter, is about 10 dB.
- 1st mixer and 1st IF amplifier circuit
  The RF signal amplified as above is mixed with the 1st local oscillation signal in the mixer(IC101), and mixer outputs the 1st IF signal.
  The frequency conversion is carried out as shown in the equation below.

  1st IF frequency = 1st local oscillation frequency - RF input frequency
- 1st local signal oscillator circuit
  The 1st local oscillation signal is generated by the VCO(CP201), and the VCO is controlled by the CPU IC(IC602) and PLL IC(IC202) on the MB-861 board.
- Other RF circuit
  The 1st IF signal (150.75 MHz) is mixed with the 2nd local oscillation signal, which is generated using X'tal CP202 (140.05 MHz) connected 2nd mixer (Q101,102).
  The 2nd IF signal is amplified by the Q103 and circuits in IC102, and is detected to be output as an audio signal.
  The IC102 also outputs the RSSI signal, which is DC level(voltage) that changes according to the change in the RF input level.

MB-861 Board

(1) Output signal control block

There are two signal paths for the audio output signal from the RF-93 board.
One is connected to the main signal path, and the other is connected to the detector circuit described below.
The output from the detector is applied to the CPU(IC602), and is used to control the muting circuit.

- Tone signal detector circuit
  To detect the tone signal of 32.768 kHz, which is output from the transmitter, is detected with the filter consisting of the X'tal (X401, 402) and amplifier (IC403).
- Noise signal detector circuit
  Noise signal are detected the amplifier (IC401) and high-pass filter.
- Battery-tone signal detector circuit
  To detect the tone signal of 32.782 kHz, which is output from the transmitter, is detected with the filter consisting of the X'tal (X403) and amplifier (IC403).

(2) Audio block

The audio signal is amplified by IC401, and is input to the muting circuit (IC302).
The audio signal output from the muting circuit is applied to the de-emphasis circuit (IC301) whose time constant is 50 μs, and the expander circuit (IC303).
Then, it is amplified by audio amplifier circuit (IC304), and is divided into main signal path and monitor signal path.

- Main signal path
  The audio signal output from the MB-861 board is converted to balanced output signal using the balanced output transformer (T301).
- Monitor signal path
  The audio signal branched from the main signal path is applied to the monitor amplifier (IC305) via the level control (RV401), and is sent to the headphones connector.

(3) Power supply block

A synchronization-rectifier type PWM DC-DC converter (IC501) changes the input voltage (1.8 to 3.0 V) up to the appropriate power voltage (3.6 V) to be supplied to each circuit.

(4) CPU block

The CPU (IC602) block controls the following functions.

LCD display

- Received channel display
- Audio output display
- Battery exhaustion display
- Error message display

Muting control

The audio signal is muted when necessary by detecting the RSSI signal, the tone signal, the noise level, and battery tone signal.

LED display

- RF input level display

  The RF input level is displayed in three levels by the LED lit in green, red, or turned off by using the RSSI signal. (D602).

About the learning mode

In the learning mode, initial setting can be done for correction of the undesired differences in the RF muting level and in the RF input display of the LEDs, which are caused by changes inherent in temperature and between the receiving channels.

Accordingly, when sensitivity related parts (band-pass filters, RF devises, etc.) have been replaced, or readjustment has been carried out to the RF amplifier stages, initial setting is required (refer to “3-2-3. Muting Level and RF Level Adjustment”).

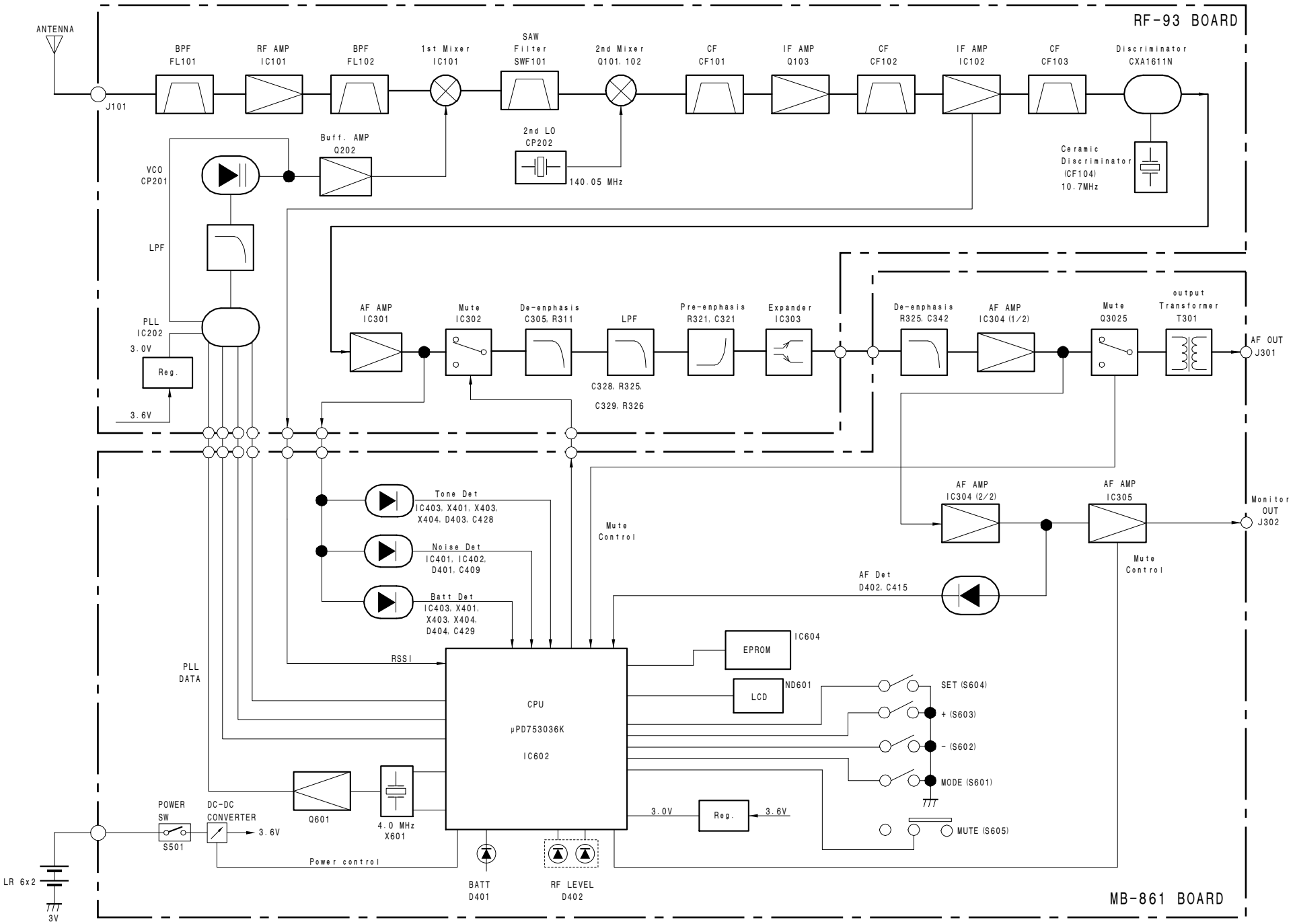
About EEPROM (IC604)

The EEPROM keeps the set receiving channel in memory. When the equipment is turned off, and then turned on again, the last selected channel can be restored.

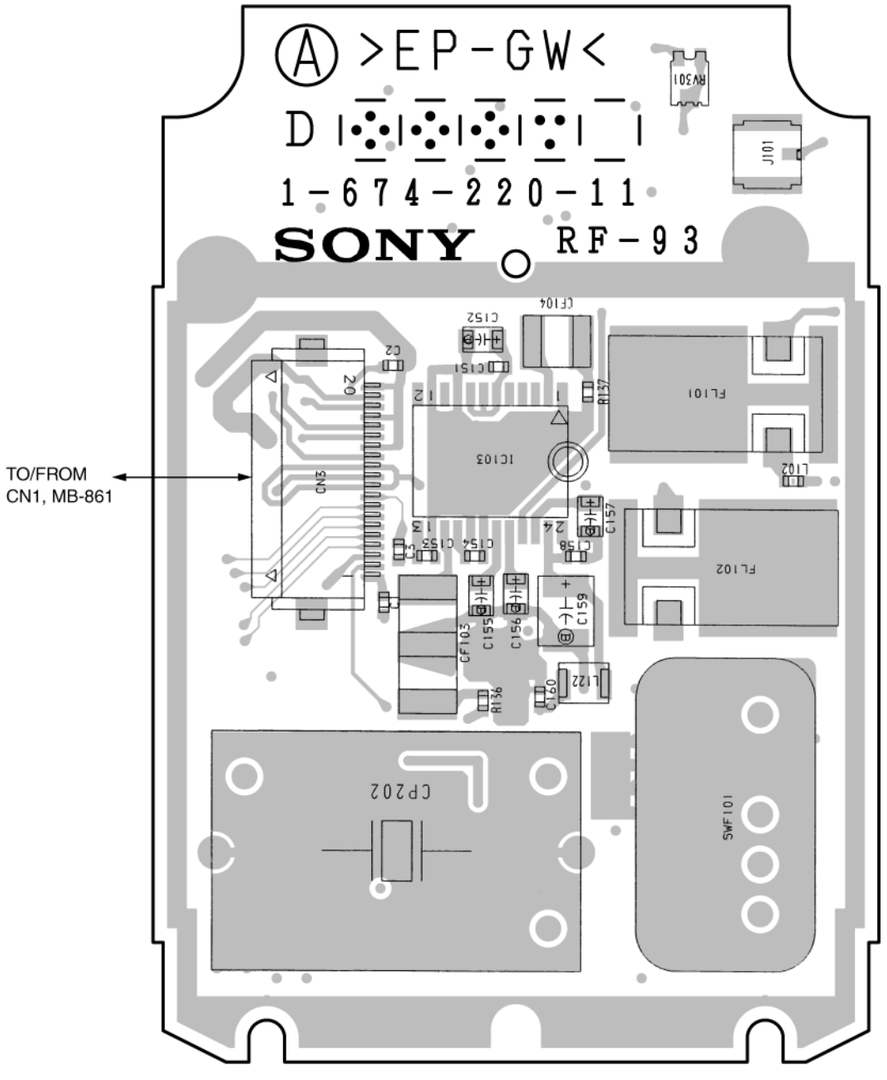
The EEPROM also keeps in memory the RF input level corresponding to the receiving channel by the initial setting of RSSI signal at the learning mode.

If “Error11”, that is an indicative of the data error in the EEPROM, is displayed, initial setting shall be carried out again in the learning mode.

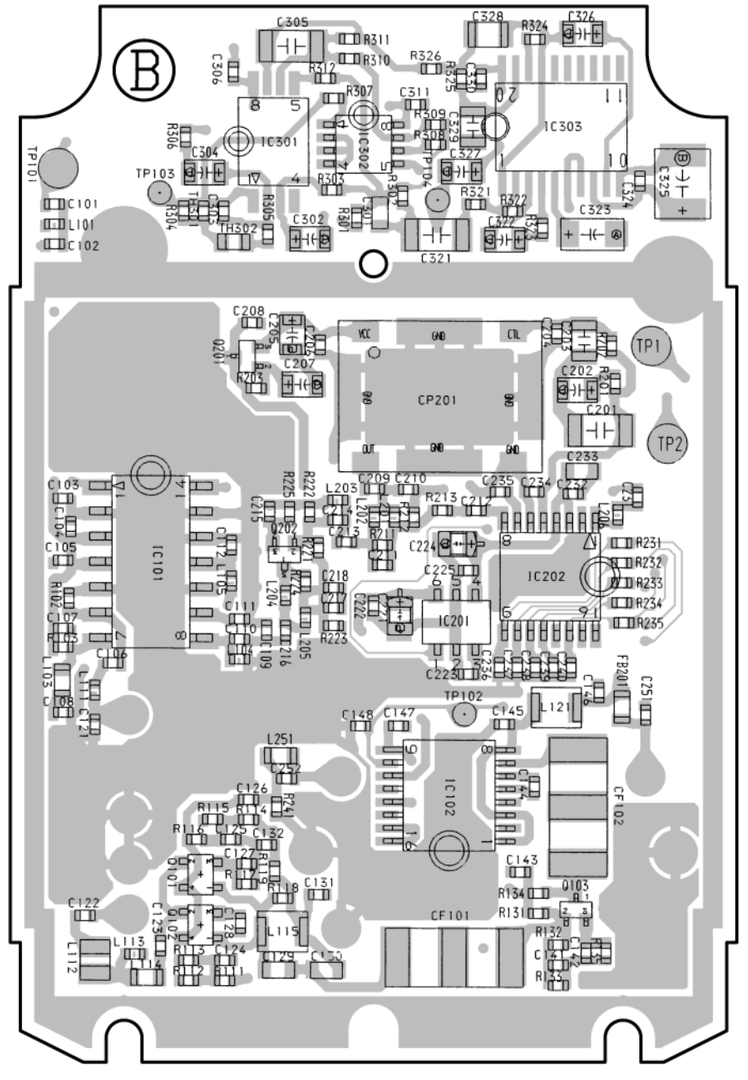
http://getMANUAL.com



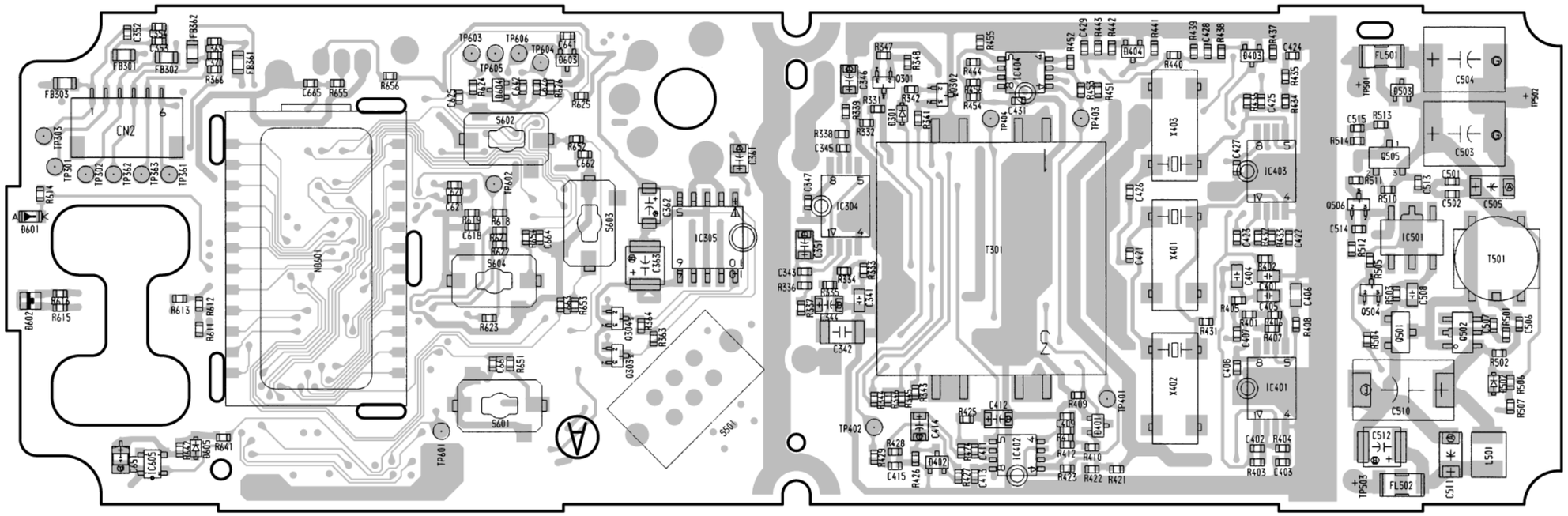
SECTION 7
SCEMATIC DIAGRAMS AND BOARD LAYOUTS



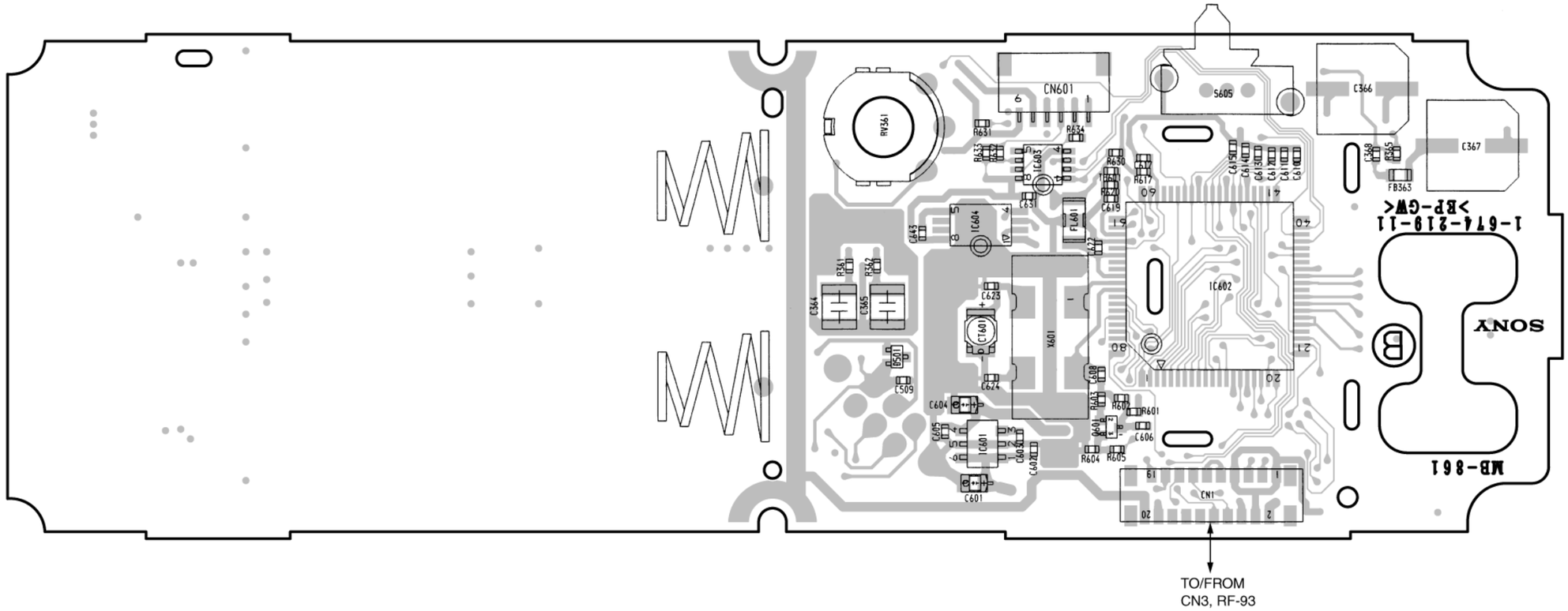
RF-93 -A SIDE-
SUFFIX: -11



RF-93 -B SIDE-
SUFFIX: -11

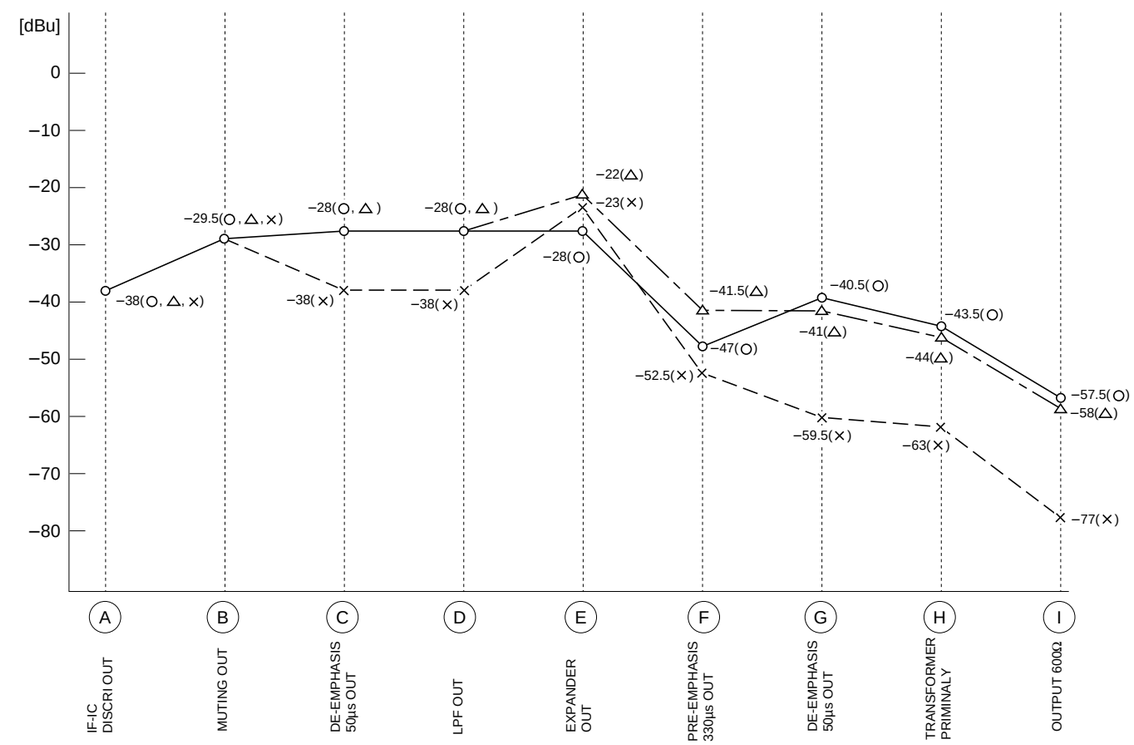


MB-861 -A SIDE-
SUFFIX: -11



MB-861 -B SIDE-
SUFFIX: -11

AF Level Diagram

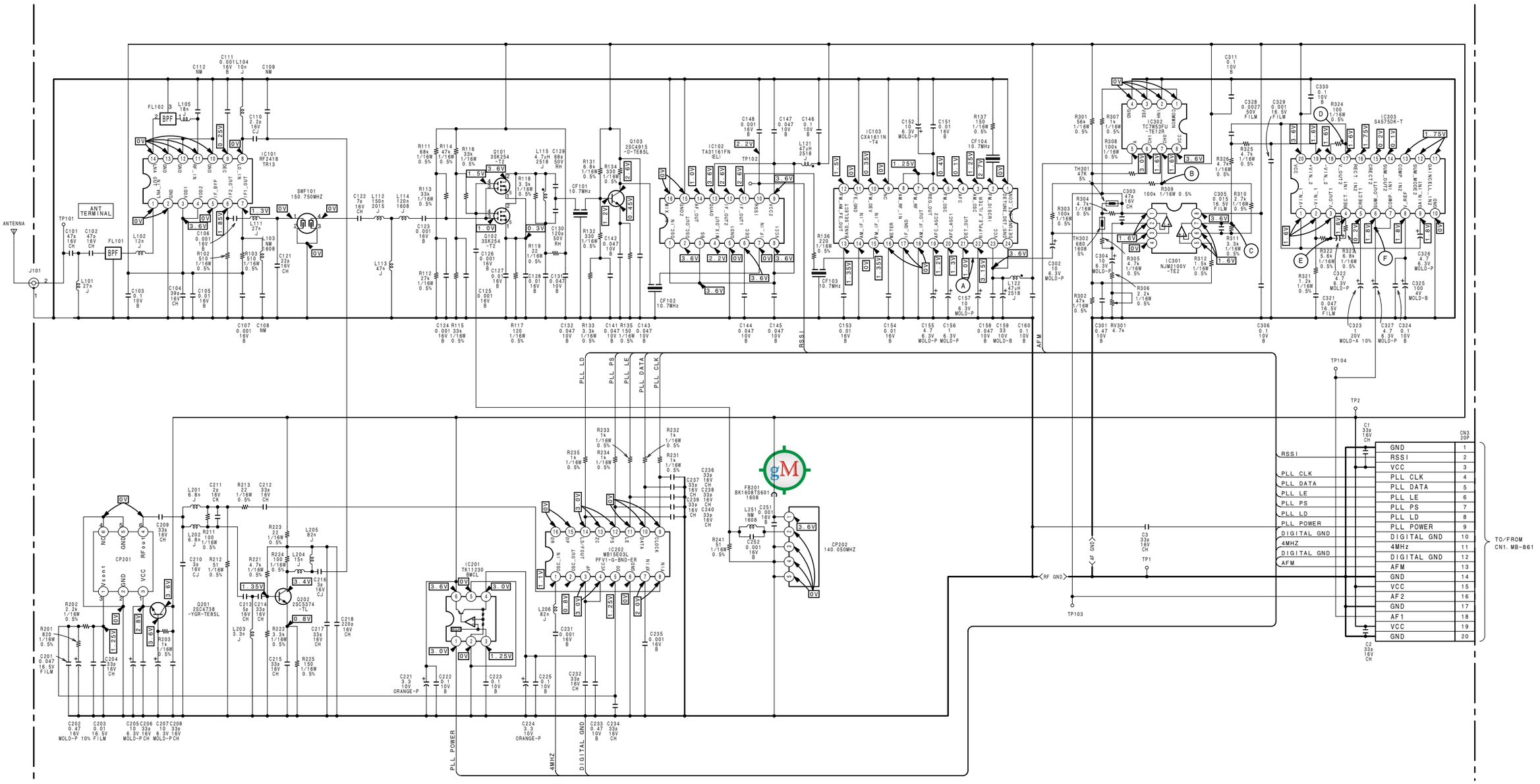


Note :

- The AF level shows the value when the following reference signal is supplied to the ANTENNA A and B IN connectors from a FM SSG.
  - ○ : RF level input 60 dBµ, ±5 kHz deviation at 100 kHz modulation
  - △ : RF level input 60 dBµ, ±5 kHz deviation at 1 kHz modulation
  - × : RF level input 60 dBµ, ±5 kHz deviation at 10 kHz modulation

0 dBµ = 1 µV (at no load)
0 dbµ = −113 dBm (0 = 1 mW, 50 Ω load)
0 dBµ = 0.775 Vrms (at no load)

- For measuring points (Ⓐ to Ⓘ), see schematic diagrams.

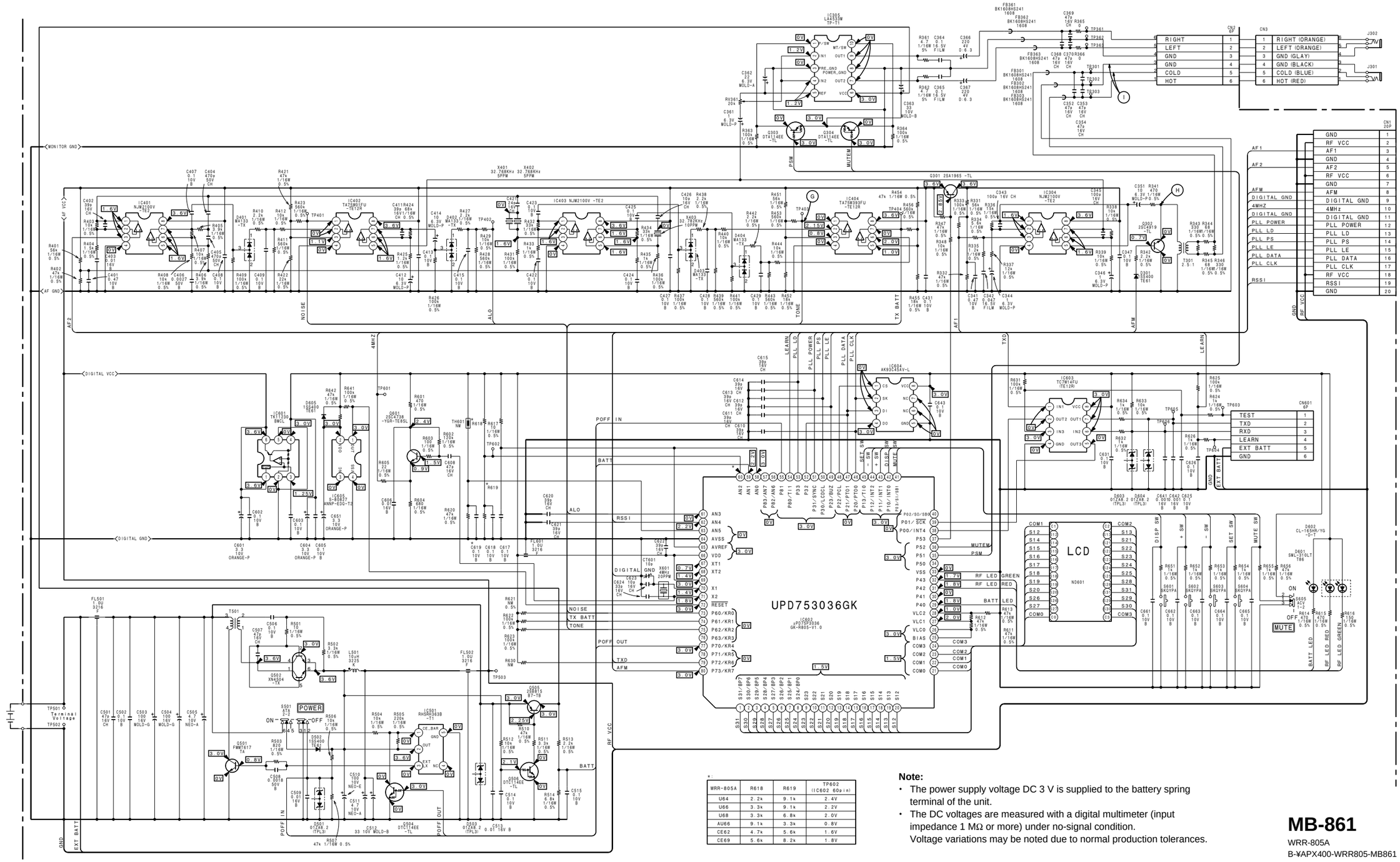


Note:

- The power supply voltage DC 3 V is supplied to the battery spring terminal of the unit.
- The DC voltages are measured with a digital multimeter (input impedance 1 MΩ or more) under no-signal condition.
  Voltage variations may be noted due to normal production tolerances.

RF-93

WRR-805A
B-¥APX400-WRR805-RF-93



*:			
WRR-805A	R618	R619	TP602 (IC602 60pin)
U64	2.2k	9.1k	2.4V
U66	3.3k	9.1k	2.2V
U68	3.3k	6.8k	2.0V
AU66	9.1k	3.3k	0.8V
CE62	4.7k	5.6k	1.6V
CE69	5.6k	8.2k	1.8V

Note:

- The power supply voltage DC 3 V is supplied to the battery spring terminal of the unit.
- The DC voltages are measured with a digital multimeter (input impedance 1 MΩ or more) under no-signal condition.
  Voltage variations may be noted due to normal production tolerances.

MB-861

WRR-805A

B-¥APX400-WRR805-MB861

WRR-805A (CE, AU) E
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